GOVERNMENT OF NEWFOUNDLAND AND LABRADOR

ANNUAL REPORT
1984-85

Hon. Jerome Dinn, Minister

DEPARTMENT OF MINES AND ENERGY

Department of Mines and Energy
Government of Newfoundland and Labrador

Hon. Jerome Dinn, Minister

ANNUAL REPORT FOR 1984/85

Compiled

by

Rex Gibbons

St. John's, Newfoundland
1985

GOVERNMENT OF NEWFOUNDLAND AND LABRADOR
DEPARTMENT OF MINES AND ENERGY

1985 09 09

The Honourable Jerome W. Dinn,
Minister, Department of Mines & Energy,
Minister Responsible for Newfoundland and
Labrador Housing Corporation,
Province of Newfoundland.

Dear Sir:

I have the honor to submit to you, herewith, the Annual Report of the Department of Mines & Energy for 1984.

This is the second number in the Annual Report Series which was commenced in 1983.

Respectfully submitted,

Yours truly,

John McKillop

John H. McKillop,
Deputy Minister.

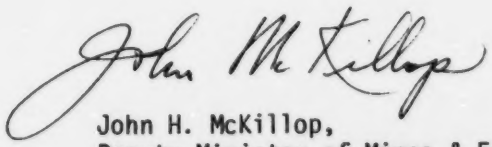
P.O. Box 4750, St. John's, Newfoundland, Canada A1C 5T7 • Telex: 016-4724 • Telephone: (709) 737-3159

FOREWORD

This is the second in a series of Annual Reports of the Department, which began with the Report for 1983.

Although the Mineral Development Division of the Department has been publishing, regularly, on an annual basis, a comprehensive report of its activities, it was decided that the demand for a regular Annual Report, covering all activities of the Department, had reached the point where such a report should be produced. In addition, the Annual Report is regarded as a valuable historical record which tends to be consulted as a readily accessible source of relevant data that must be recalled from time to time.

The officers of the Department; the Division Directors; the Section Heads, the Assistant Deputy Minister and, especially, the Head of the Publications and Information Section and his staff are to be congratulated on their successful effort in producing this comprehensive and useful Report.



John H. McKillop,
Deputy Minister of Mines & Energy.

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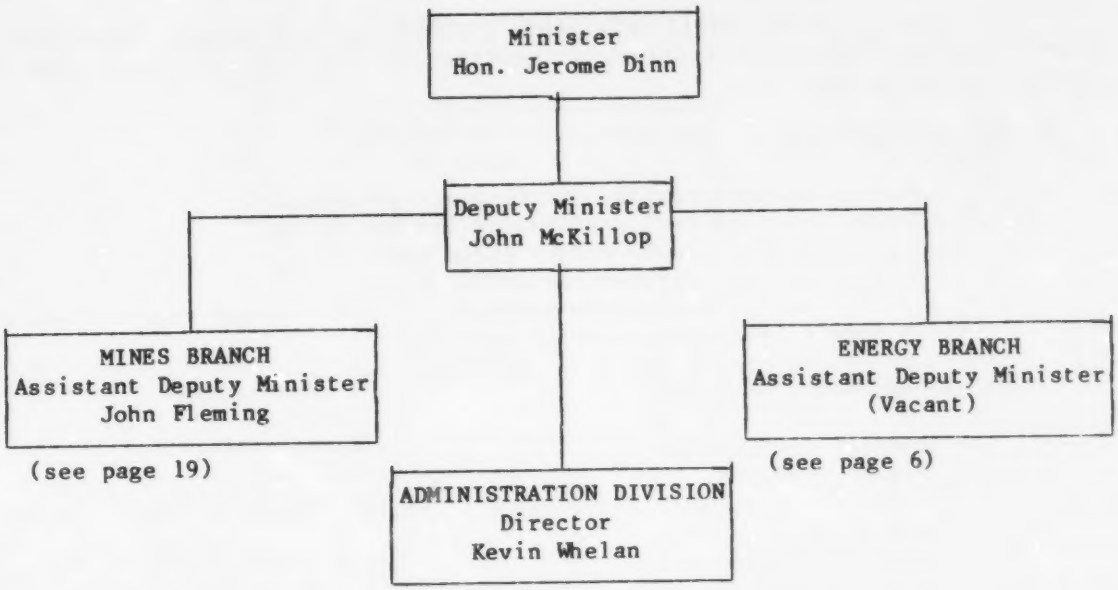
ORGANIZATIONAL CHART
DEPARTMENT OF MINES AND ENERGY



ADMINISTRATION DIVISION

DEPARTMENT OF MINES AND ENERGY

The Administration Division's work encompasses the entire department. The functions are administration, accounting and registry services, with a breakdown as follows:

i) Administration

- . General administration, staffing and personnel
- . Budget coordination, preparation and monitoring
- . Preparation of annual salary estimates
- . Accommodations, maintenance and security
- . Liaison with government departments / agencies and representation on committees, boards and at meetings

ii) Accounting

- . Invoice processing
- . Travel payments
- . Payroll services (attendance, leave, payroll and salary monitoring)
- . Revenue collection
- . Financial reports
- . Inventory recording and control
- . Reconciliations
- . Budget monitoring
- . Requisition (for goods and services) processing

iii) Registry Services

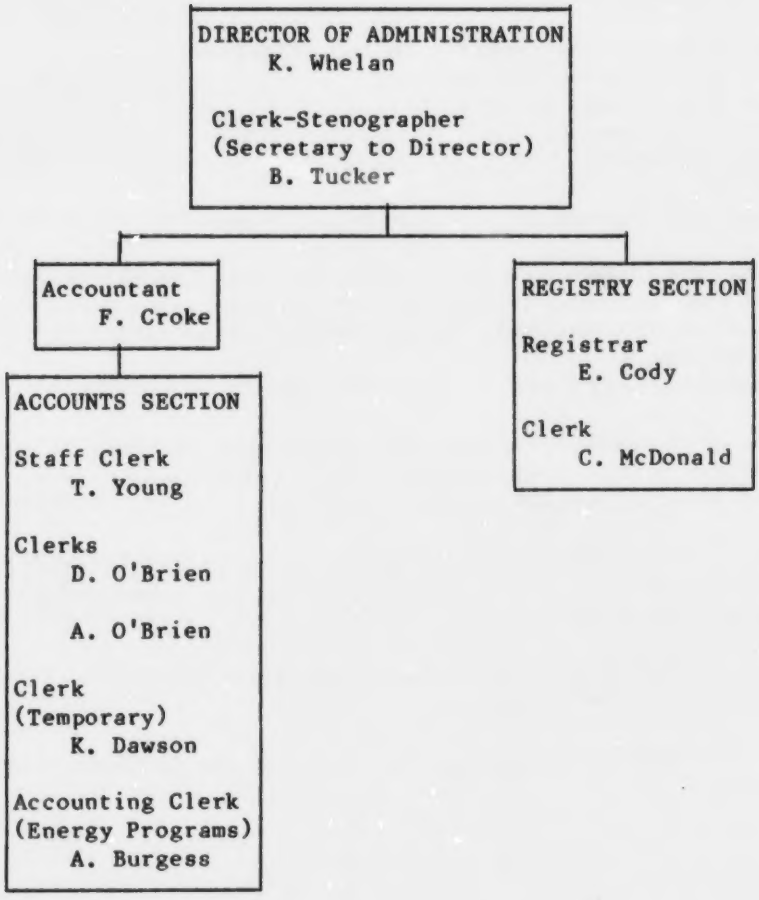
- . Correspondence filing, indexing and retrieval
- . Mail receiving, sorting and distribution
- . Ordering, inventory and distribution of general office supplies
- . Forms and document retention

The "permanent staff" complement of the department totaled 86 positions in fiscal year 1984-85. At yearend, there were sixty-one (61) approved temporary positions in addition to the permanent staff employment. Sixty (60) technical and nontechnical staff were hired during 1984 field season.

The department's approved budget for 1984/85 fiscal year was $7,261,700 million (excluding Newfoundland and Labrador Hydro and the Petroleum Directorate).

DEPARTMENT OF MINES AND ENERGY

Administration Division



REPORT OF THE ACCOUNTANT

The Accounting Section is responsible for the management of financial services, internal systems and accounting operations of the department. There are currently six employees, 4 permanent and 2 temporary, in the section.

Major activities during 1984:

- Provision of accounting services to the department:
  - Acquisition of goods and services
  - Invoice processing
  - Travel claim payments
  - Payroll services

- Preparation and monitoring of departmental budget

- Preparation and submission of claims to the federal government with respect to the following federal/provincial cost-shared agreements:
  - Conservation and Renewable Energy Demonstration (C.R.E.D.A.)
  - Industrial Energy Conservation
  - Interchange Canada (Expired June 30, 1984)

- Production of financial reports and other data to satisfy departmental and interdepartmental requirements (i.e. salary monitoring, C.R.E.D.A. monthly statements, etc.)

- Collection of revenue from sale of goods and services, quarry permit fees and royalties, mining licences and leases, and reimbursement of cost-shared expenditures, etc.

- Preparation of yearend financial statements for inclusion in the annual Public Accounts of the province.

- Provision of support services to the staff of the Auditor General during annual audit.

STATEMENT OF EXPENDITURE - RELATED REVENUE*

DEPARTMENT OF MINES AND ENERGY

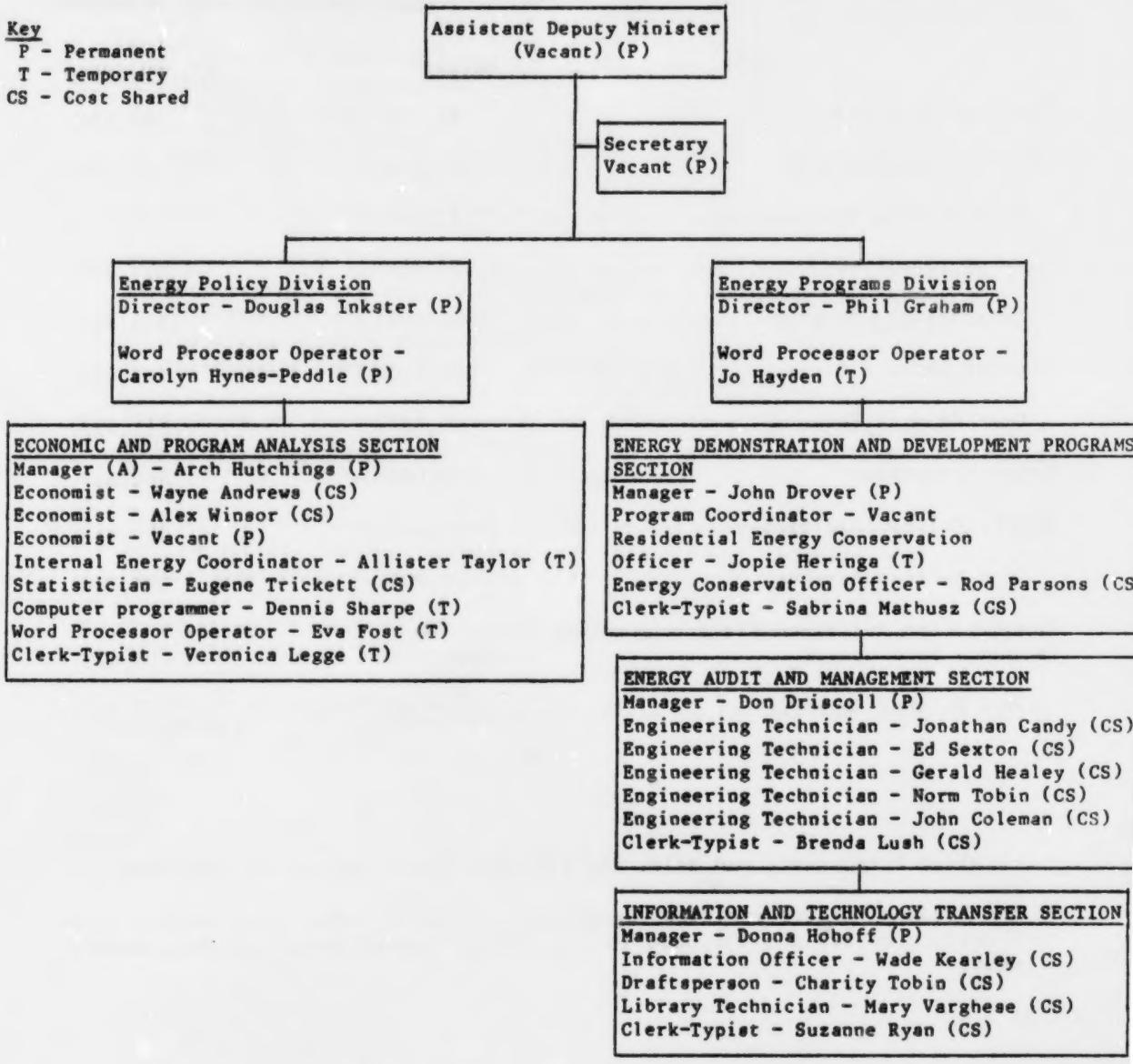
FOR 1984/85

	Budget	Actual Expenditures
Minister's Office	$ 88,900	$ 105,434
General Administration	1,033,300**	407,198**
Less Related Revenue	(2,200)	(3,777)
Mineral Development	5,104,500	4,021,780
Less Related Revenue	(937,300)	(514,678)
Mineral Lands & Mines	193,000	167,720
Less Related Revenue	(10,000)	(11,453)
Mines Management	601,000	460,887
Energy Policy Development	403,300	348,458
Less Related Revenue	(139,000)	(94,308)
Conservation and Renewable Energy Resource Development	3,100,700	3,413,422
Less Related Revenue	(2,174,500)	(2,356,635)
Net	$ 7,261,700	$ 5,944,048

* Petroleum Directorate and Nfld. and Labrador Hydro figures not included.

** The "Budget" figure includes expenditures voted in other departments; these expenditures are not included in the "Actual Expenditures" of this department.

ENERGY BRANCH - ORGANIZATION CHART 1984/85


Key
P - Permanent
T - Temporary
CS - Cost Shared
Assistant Deputy Minister
(Vacant) (P)
Secretary
Vacant (P)
Energy Policy Division
Director - Douglas Inkster (P)
Word Processor Operator -
Carolyn Hynes-Peddle (P)
Energy Programs Division
Director - Phil Graham (P)
Word Processor Operator -
Jo Hayden (T)
ECONOMIC AND PROGRAM ANALYSIS SECTION
Manager (A) - Arch Hutchings (P)
Economist - Wayne Andrews (CS)
Economist - Alex Winsor (CS)
Economist - Vacant (P)
Internal Energy Coordinator - Allister Taylor (T)
Statistician - Eugene Trickett (CS)
Computer programmer - Dennis Sharpe (T)
Word Processor Operator - Eva Fost (T)
Clerk-Typist - Veronica Legge (T)
ENERGY DEMONSTRATION AND DEVELOPMENT PROGRAMS SECTION
Manager - John Drover (P)
Program Coordinator - Vacant
Residential Energy Conservation
Officer - Jopie Heringa (T)
Energy Conservation Officer - Rod Parsons (CS
Clerk-Typist - Sabrina Mathusz (CS)
ENERGY AUDIT AND MANAGEMENT SECTION
Manager - Don Driscoll (P)
Engineering Technician - Jonathan Candy (CS)
Engineering Technician - Ed Sexton (CS)
Engineering Technician - Gerald Healey (CS)
Engineering Technician - Norm Tobin (CS)
Engineering Technician - John Coleman (CS)
Clerk-Typist - Brenda Lush (CS)
INFORMATION AND TECHNOLOGY TRANSFER SECTION
Manager - Donna Hohoff (P)
Information Officer - Wade Kearley (CS)
Draftsperson - Charity Tobin (CS)
Library Technician - Mary Varghese (CS)
Clerk-Typist - Suzanne Ryan (CS)

PERSONNEL

The Energy Programs Division has the mandate to develop and deliver programs promoting energy conservation and management and the utilization of alternate and renewable energy resources and technologies.

To accomplish this mandate in 1984-85, the division had 21 staff organized in four sections:

1) Administration Section:

2 staff to manage the division.

Director - Philip Graham P. Eng.

Secretary - Jo Hayden

2) Energy Information and Technology Transfer Section:

5 staff to manage publications, audiovisual materials, publicity, library services, etc.

Manager - Donna Hohoff replacing Juanita Keel-Ryan, June, 1984

Information Officer - Wade Kearley, replacing Dale Fitzpatrick, January, 1984

Draughtsperson - Charity Tobin

Librarian - Mary Varghese

Library Assistant - Sue Ryan, hired October, 1984

During the fifteen (15) months from January 1, 1984 to March 31, 1985, the section carried out information transfer activities as set out in the Canada/Newfoundland Conservation and Renewable Energy Demonstration Agreement. Project studies, reports, summaries and related information were prepared for the public. The library and filing system were updated and other activities were performed as necessary.

Publications

- Compiled and edited information for 56 project summaries in preparation for publication.
- Cooperated with the Energy Demonstration Section to compile a guidebook to energy information sources.
- In cooperation with engineering consultants, produced texts for fifteen (15) energy management folders aimed at administrators and other decision makers who manage buildings in this province.
- Supervised the development of four (4) alternate energy booklets for the residential sector.
- Supervised development, editing and design of a textbook for a Grade 10 level course on energy.
- Supervised the editing of seventeen (17) technical reports for printing.

Audiovisual Materials

- Developed and equipped an audiovisual room for government and public use.
- Served as resource people to the Energy Demonstration Section in production of videotapes on new housing for use in the residential energy education program.
- Supervised the development of eight (8) slide shows on energy management in buildings.
- Supervised the development of four (4) slide shows on alter-

nate energy for residential use.
- Continued to update and supplement the audiovisual library with slides and photographs of projects and branch activities.

Promotion

- Organized and completed open house for 40 housing retrofit and new housing projects. Produced and distributed signs, issued press releases, and designed and placed advertising. Prepared project summaries for printing.
- Organized and completed open houses for 29 small scale projects ranging from wind generators to photovoltaics to energy efficient retrofits for commercial buildings. Produced and distributed signs, issued press releases, and designed and placed advertising. Ten project summaries have been produced and distributed; the remainder are in final stages of production.
- Organized and conducted the official opening of the wood-fired boiler, Newfoundland Hardwoods Asphalt and Creosote plant, Clarenville.
- Designed, laid out and placed promotional material for a course on housing design, and for seminars on planning to build an energy efficient home, firewood cutting and burning, and commercial woodfuel.
- Produced other written material for the branch, including press releases, ministerial speeches, brochures, etc.
- Participated in provincial trade shows, including Home Show '84, and Energy Savings Show.

Other

- Eighty (80) per cent completed classifying and cataloguing energy library materials.
- Developed a specific by-sector mailing list.
- Handled public requests for energy-related information.

3) Energy Demonstration and Development Section:

6 staff whose main job in 1984-85 (together with the Information and Technology Transfer Section) was the implementation of the federal-provincial CREDA program (Conservation and Renewable Energy Demonstration Agreement). The Provincial Alternate Fuels Development Program was also established.

Manager - John Drover, P. Eng.

Projects Coordinator - vacant since October, 1983

Economist - Alex Winsor (transferred from Energy Policy Division)

Residential Energy Information Officer - Jo Heringa

Residential Energy Information Officer - Rod Parsons

2 Engineering Co-op Students - (3 work terms) Tom Connors, Kevin Brown, Denis Martin, Kevin Keating

Secretary - Sabrina Mathusz

4) Energy Management and Audit Section:

9 staff whose job in 1984-85 was the implementation of the federal-provincial NEAP program (National Energy Audit Program) and the development of an in-house provincial program.

Manager - Don Driscoll, P. Eng.

3 Technician III's - Jonathan Candy, Gerald Healey, Rod Parsons

3 Technician II's - John Coleman, Ed Sexton, Norm Tobin

Statistician - Eugene Trickett

Secretary - Brenda Lush

PROGRAMS

As noted above, the two main programs were (A) CREDA and (B) NEAP, which were federal-provincial cost-shared agreements with a funding ratio of 80% federal and 20% provincial.

In addition, two provincial programs were approved with funding to start in 1984-85. These are (C) Alternate Fuels Development Program and (D) Energy Management Program for Provincial Public Buildings.

The balance of the report describes these four programs.

(A) CREDA

INTRODUCTION

The Conservation and Renewable Energy Demonstration Agreement (CREDA) was a federal-provincial cost-shared program to develop and demonstrate promising new technologies which exploit renewable energy resources, conserve energy or make its use more efficient. The program was designed to develop broad public awareness of the potential of renewable energy and conservation technologies and to create employment in new or existing industries. The agreement was signed in June of 1979 and expired on March 31, 1984 with a one year clean-up period to March 31, 1985, allowing completion of approved projects.

The focus of the program has been on energy conservation in buildings and on woodchips and peat as alternative fuels. There were 210 CREDA demonstration projects undertaken: a) 165 on energy conservation in buildings, including 115 residences and 50 larger buildings of all types and b) 45 on alternative energy sources, including 30 for residences and 15 for institutions and businesses.

BUDGET

Total CREDA expenditures over 5 years were: $6.9 million by Canada (80%) and $1.7 million by Newfoundland (20%). Expenditures for 1984-85 were $2.9 million, comprising the following elements:

Residential energy conservation	$ 249,000
Conservation for businesses and institutions	1,871,000
Residential woodchip burning, hydro, wind and solar	143,000
Commercial woodburning, fuel peat, wind and solar and institutions	451,000
Administration	386,000
Total	$2,900,000

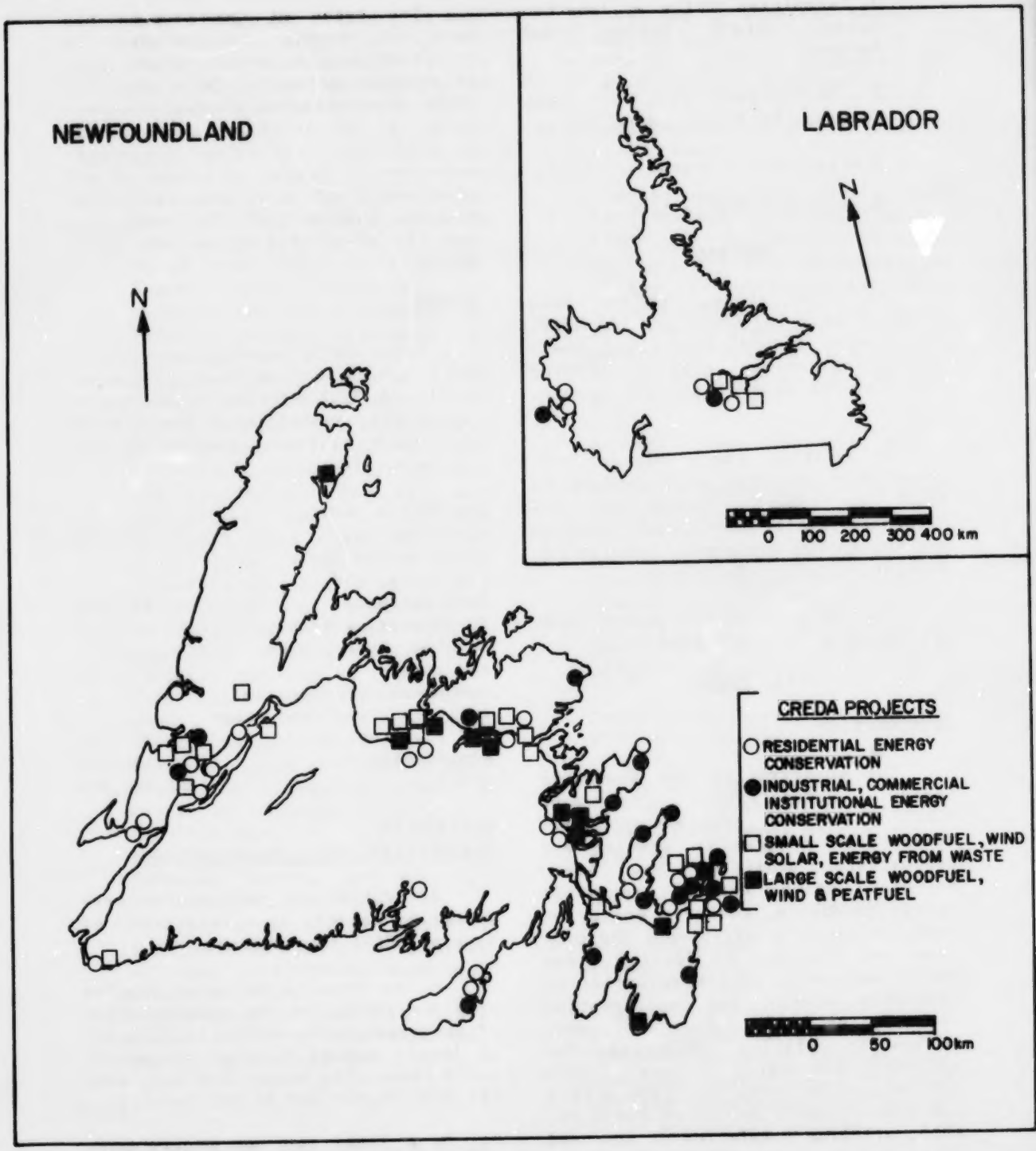
ACTIVITIES

Residential Energy Conservation

Activities in this sector were primarily aimed at completion of several CREDA subprograms.

- The Housing Retrofit Program provided funds for the demonstration of conservation retrofits in 50 homes at levels suited to what homeowners could reasonably budget for such work ($2,000, $4,000 and $6,000 levels).

- A final two new houses were funded ($9,000 each) under the New


NEWFOUNDLAND
N
LABRADOR
N
0 100 200 300 400 km
CREDA PROJECTS
RESIDENTIAL ENERGY CONSERVATION
INDUSTRIAL, COMMERCIAL INSTITUTIONAL ENERGY CONSERVATION
SMALL SCALE WOODFUEL, WIND SOLAR, ENERGY FROM WASTE
LARGE SCALE WOODFUEL, WIND & PEATFUEL
0 50 100km

Low Energy Housing Program for a total of 15 houses.

- 18 air-to-air residential heat exchangers were installed at the Viking Co-op in Mount Pearl to test the effectiveness of such units in this province. Monitoring will take place in 1985/86.

- 10 small scale projects were also undertaken in the residential sector, including several heat pumps, one solar collector (PV), and several attached greenhouses.

- In association with Newfoundland and Labrador Housing Corporation, house designs tailored to northern Labrador were also prepared and three houses were constructed with funding from Mines and Energy.

In addition, the Energy Branch was successful in updating the Vocational School Carpentry and Drafting course materials to reflect current standards of energy conservation.

Several seminars were also undertaken based on the revised text. The seminars were selectively directed at instructors, homeowners and students.

Many of the projects were subjected to detailed monitoring and reports will be available in 1985/86.

Industrial, Commercial and Institutional Energy Conservation

Under the Industrial/Commercial Retrofit Subprogram, demonstration projects were completed in most commercial, industrial and institutional sectors involving waste heat recovery, building controls, process improvements, lighting and low cost energy management measures. Most work was done in existing buildings and plants.

A remote management system was installed, in cooperation with the Newfoundland Department of Public Works and Services, which links the energy control systems of six government buildings to Confederation Building. The system has capabilities to expand to as many as 80 buildings and allows continuous monitoring of energy usage.

In the fishing sector, a major project involved the installation of an innovative energy saving and "slurry" ice machine at the Quinlan Brothers plant in Old Perlican. The use of fish oil as a fuel was also demonstrated at Isle aux Morts and Gaultois.

Small Scale Alternate Fuels

The department participated in the installation of small wood burners at Baie Verte (apartment building), Gambo (greenhouse), Bishop's Falls (garage), and Corner Brook (garage). Scrap wood burners were installed at Wallken Enterprises (St. John's) and Western Woodworkers (Deer Lake).

Sod peat from St. Shotts was sold successfully in the St. John's market for residential use.

The use of chicken litter as a fuel was demonstrated at two locations, Howley and Bellevue.

Large Scale Alternate Fuels

The department continued its efforts in this area with the completion of the Newfoundland Hardwoods woodfuel conversion project at Clarenville, which opened in October, 1984. Savings of $700/day have been confirmed.

The conversion of the Clarenville District Vocational School was

substantially completed and should be operational by September, 1985.

Several major conversion studies were conducted which should lead to construction projects in 1985/86. These include conversion of Western Memorial Hospital to woodfuel, conversion of the Catalina fish plant, and the construction of a wood-fired electrical generation plant at Roddickton.

Final design drawings were also completed for the construction of a district heating pipeline from the Gander Hospital to the Gander District Vocational School. The system will utilize excess boiler capacity at the hospital.

A funding contribution was made to investigate the feasibility of electricity generation by the burning of municipal waste at Robin Hood Bay.

With respect to the province's peat resources, the department provided operating funding to the St. Shotts project; funding for environmental monitoring; a provincial inventory of peat resources; and a study into the conversion of the Trepassey Fish Plant to peat fuel.

Administration

Administration of the program involves the expenses and salaries for the staff, office equipment, project development and information activities related to each project. Emphasis is placed on demonstration and information transfer for each project, with the goal of future replication of the technology. Administration costs were about 18% of the total CREDA expenditures. The provincially funded Alternate Fuels Program is administered by existing staff.

RESULTS

Final reports will be published for each project. Most will be completed by mid-1985. Unpublished results are available at the Energy Branch.

DISTRIBUTION

The accompanying map of Newfoundland and Labrador shows the geographical distribution of CREDA projects.

(B) NEAP

INTRODUCTION

The National Energy Audit Program (NEAP) was funded under an Industrial Energy Conservation Agreement between the Province of Newfoundland and the Government of Canada. The program was administered by the Newfoundland Department of Mines and Energy in conjunction with Energy, Mines and Resources Canada. The program was designed to offer services to industrial, commercial and institutional organizations to identify options for improving energy efficiency, and consisted of energy audits, consultant grants, and seminars/workshops. The main benefits of the program were free energy audits and consulting advice assistance grants of up to 90% of the consultant's fee. The agreement was signed in February, 1982 and terminated on March 31, 1984, with the exception of a six-month extension of the energy audit service to September 30, 1984.

BUDGET

The agreement provided $2.9 million. Canada provided $2.32 million (80%) and the province $0.58 million (20%). For 1984, the budget was $326,500, and comprised the following elements:

Table 1: 1984/85 NEAP AUDIT SUMMARY DATA

TYPE OF FACILITY	# OF AUDITS	% OF TOTAL	ENERGY $ ANALYZED	POTENTIAL $ SAVINGS	KWH AUDITED	POTENTIAL KWH SAVINGS	% $ SAVINGS	% KWH SAVINGS
Industrial (Exc. Fish Plants)	2	1.40	209836	88949	6417469	2367289	42.55	36.89
Fish Plants (Seasonal)	0	.00	0	0	0	0	0	0
Fish Plants (Full-time)	0	.00	0	0	0	0	0	0
Commercial	52	35.10	1314306	398367	28247380	11036632	30.31	39.07
Municipal	1	.70	130892	13684	2139910	275110	10.45	12.86
Recreation	8	5.40	226451	67849	4728200	2009146	29.96	42.49
Schools (1-3 Classrooms)	3	2.00	19124	6630	469569	193881	34.67	41.29
Schools (4-10 Classrooms)	22	14.90	604388	225891	16797310	8177102	37.38	48.68
Schools (11+ Classrooms)	34	22.90	914735	247184	29889400	8285690	27.02	39.45
Religious (Churches)	8	5.40	102879	29933	2886440	929899	29.10	33.13
Religious (Other)	5	3.40	88892	28437	2357100	949310	31.99	40.27
Hospitals (1-50 Beds)	1	.70	6391	0	162743	0	0	0
Hospitals (51+ Beds)	9	6.10	847480	208798	17314800	5984000	24.64	34.56
Residential (Apartments)	3	2.00	60395	10660	1127650	255137	17.65	22.63
Agriculture	0	.00	0	0	0	0	0	0
Total all Facilities:	148	100	4524969	1326382	103368971	40383196	29.31	39.07

Regional Summary Report

REGION								
St. John's	50	33.78	1588511	549896	39824180	17298438	34.57	43.44
Avalon Peninsula	22	14.86	518454	126210	10639369	3479264	24.34	32.70
Clar/Bonavista	1	.68	22126	8244	517430	240688	37.26	46.52
Burin Peninsula	1	.68	24350	2075	150600	58000	8.52	38.51
Central Newfoundland	39	26.35	869390	210680	17764000	6046000	24.23	34.04
Corner Brook	14	9.46	493184	165489	11994300	5719900	33.56	47.69
West Coast (exc. Corner Brook)	10	6.76	138020	45374	3884300	127560	32.87	41.36
Northern Peninsula	11	7.43	951986	219203	19572500	6266000	23.03	32.01
Labrador East	0	0	0	0	0	0	0	0
Labrador West	0	0	0	0	0	0	0	0
Total all Regions:	148	100	4606021	1326371	103546679	40383970	28.80	39.00

Total Sq.Ft. = 3,972,993 Initial KWH/Sq.Ft. = 26.1 KWH Potential after mods. = 15.9

Mobile energy bus audits	$209,500
Consultant advice assistance grants	116,000
Seminars/workshops, etc.	1,000
Total	$326,500

ACTIVITIES

Mobile Energy Audits

During 1984, 148 audits were performed throughout the province. The number of audits by sector was as follows:

Commercial	78
Industrial	2
Educational	59
Municipal	9

Energy bills totalling $4.61 million were analyzed and potential savings of $1.33 million were found (28.8%). As well 103,364 MWh of energy were analyzed with potential savings of 40,383 MWh identified (31.1%). Over $0.3 million of potential savings were classed as no or low-cost items with relatively short payback periods if implemented.

Fifty-two percent of all audits were conducted outside the Avalon Peninsula, with 26% of total conducted in central Newfoundland. The total floor area in all buildings amounted to over 35 ha.

A summary of 1984 audit activity is given in Table 1.

Consulting Advice Assistance Grants

Approval of grants began in March, 1983. Sixty-two clients submitted applications up to March 31, 1984, of which 56 were given preliminary approval to proceed. Forty-three consultants' proposals (grant value of $207,175) were approved. Forty-one consultants' reports were received (grant value of $193,358).

Follow-up Program

In December, 1983, a follow-up program was started to determine what savings had been made among clients. Indications are that, of the 65 clients who responded to date, approximately $776,000 in energy costs had been saved as a result of the audit program. The follow-up program covered all clients audited up to March 31, 1984. Clients audited from April 1 to September 30, 1984 were covered by a private consultant.

(C) WOODFUEL DEVELOPMENT PROGRAM

The objective of this program over the next 5 years is to replace 20 million litres of oil per year in existing heating plants with 50,000 cords per year of woodfuel. This is to be accomplished by grants to stimulate heating plant conversions to woodfuel and by helping to set up the required fuelwood supply infrastructure. The resulting direct employment should be approximately 100 construction jobs (of a one-year average duration) and 100 permanent jobs (mainly for wood supply).

Estimated cost for the 5-year program is $2 million. The budget for 1984-85 was $260,000, including $90,000 for heating plant conversion studies and $100,000 and $70,000 for wood boiler conversions at Newfoundland Hardwoods and at the Vocational School in Clarenville.

(D) ENERGY MANAGEMENT PROGRAM FOR PROVINCIAL PUBLIC BUILDINGS

The objective of this program is to help reduce the provincial government's annual $40 million energy bill for buildings. The target is an annual energy reduction of $1 million. This is to be accomplished by three main functions:

1) Energy audits and technical advisory service for identifying potential cost effective energy saving measures and advising building operators;
2) Energy use monitoring and reporting;
3) Technical advice service.

The budget for 1984-85 was $25,000 for program and software development and computer hardware.

Commercial energy analysis software was tested on an Olivetti M 18P microcomputer both in-house and on a pilot project involving a school board. Subsequently, development began on software suited to Newfoundland needs with the aim to have a working system by September, 1985. Staff involved were formerly operating NEAP.

ENERGY BRANCH
ENERGY POLICY DIVISION
1984/85 SUMMARY

MANDATE

The mandate of the Energy Policy Division is to monitor and analyze energy supply and demand, to advise government on energy policy issues, and to coordinate intergovernmental energy activities.

PERSONNEL

Director - Douglas Inkster
Manager (Acting), Economics and Program Analysis - Arch Hutchings
Economist - Wayne Andrews
Economist - Alex Winsor
Internal Energy Conservation Coordinator - Allister Taylor
Computer Programmer - Dennis Sharpe
Statistician - Eugene Trickett
Word Processor Operator - Carolyn Hynes-Peddle
Word Processor Operator - Eva Fost
Clerk-Typist - Veronica Legge

BUDGET

The 1984-85 budget for the Division was $403,300. Part of this total was funded by the federal government under the Conservation and Renewable Energy Demonstration Agreement (CREDA) and the Industrial Energy Conservation Agreement (National Energy Audit Program - NEAP).

ACTIVITIES

1. Through the IPACE subcommittee on demand restraint, which was chaired by Newfoundland, a report was completed which provided the basis of communication and coordination mechanisms to assist all jurisdictions in their tasks of preparing demand restraint programs for use during an energy emergency. The report was endorsed by the Interprovincial Advisory Committee on Energy (IPACE) and the Council of Provincial Energy Ministers (CPEM), and the subcommittee was charged with carrying out its recommendations. The Director of the division continues to act as chairperson for the subcommittee.

2. The division was also engaged in the development of a province-wide energy demand restraint program for use during a period of national or regional energy supply disruption. To aid in this process, an interdepartmental committee has been established, chaired by the Director of the division; as a first step, it has compiled a list of possible restraint measures for use in government facilities and vehicles. This would have the effect of both cutting government energy usage during an energy emergency and of providing a highly visible example for other institutions.

   Further, energy use data by government department were obtained and analyzed to identify which departments could contribute the most during an emergency. This information will also be used for ongoing energy conservation measures within the public sector.

3. The division represented the government on the Provincial Advisory Committee (PAC) to the Energy Supplies Allocation Board (ESAB), which is responsible to

the federal government for the management of all major national energy disruptions.

4. The division also participated in the various tasks of the Northeastern International Committee on Energy (NICE) and its Emergency Planning Task Force. The purpose of this committee is to exchange information and to carry out joint studies and exercises relating to the common energy interests of the New England states and eastern Canada provinces as required by the Conference of New England Governors and Eastern Canadian Premiers.

5. The econometric computer-based energy demand model of the province was upgraded to improve the forecasts for the industrial and commercial sectors. Further work will continue during the 1985-86 fiscal year.

6. During 1984, the historical energy database of the province was updated and improved for comprehensive analysis and modelling purposes.

7. The Annual Energy Review, 1984, was completed. The review presents detailed information on energy demand and supply developments and energy prices during 1983 and 1984.

8. The seventh annual review of petroleum product and electricity prices in Newfoundland and Labrador was produced.

9. A paper was produced on the economic impact of the cancellation of the Canadian Oil Substitution Program (COSP) and the Canadian Home Insulation Program (CHIP).

10. The division continued to provide energy and economic analysis on projects implemented by the Energy Programs Division.

11. A School Energy Survey was developed and implemented by the division. This was a mailout questionnaire survey to all thirty-five school boards in the province to collect information on energy use and school building features as well as to determine what school boards have done to conserve energy. The information has been stored on computer and will form the basis of further research in the educational sector.

12. A report was prepared to support the Energy Programs Division's Public Building Energy Audit Service. This report consolidated all available data on energy use in the Public Service and provided projections of potential energy savings possible through energy conservation.

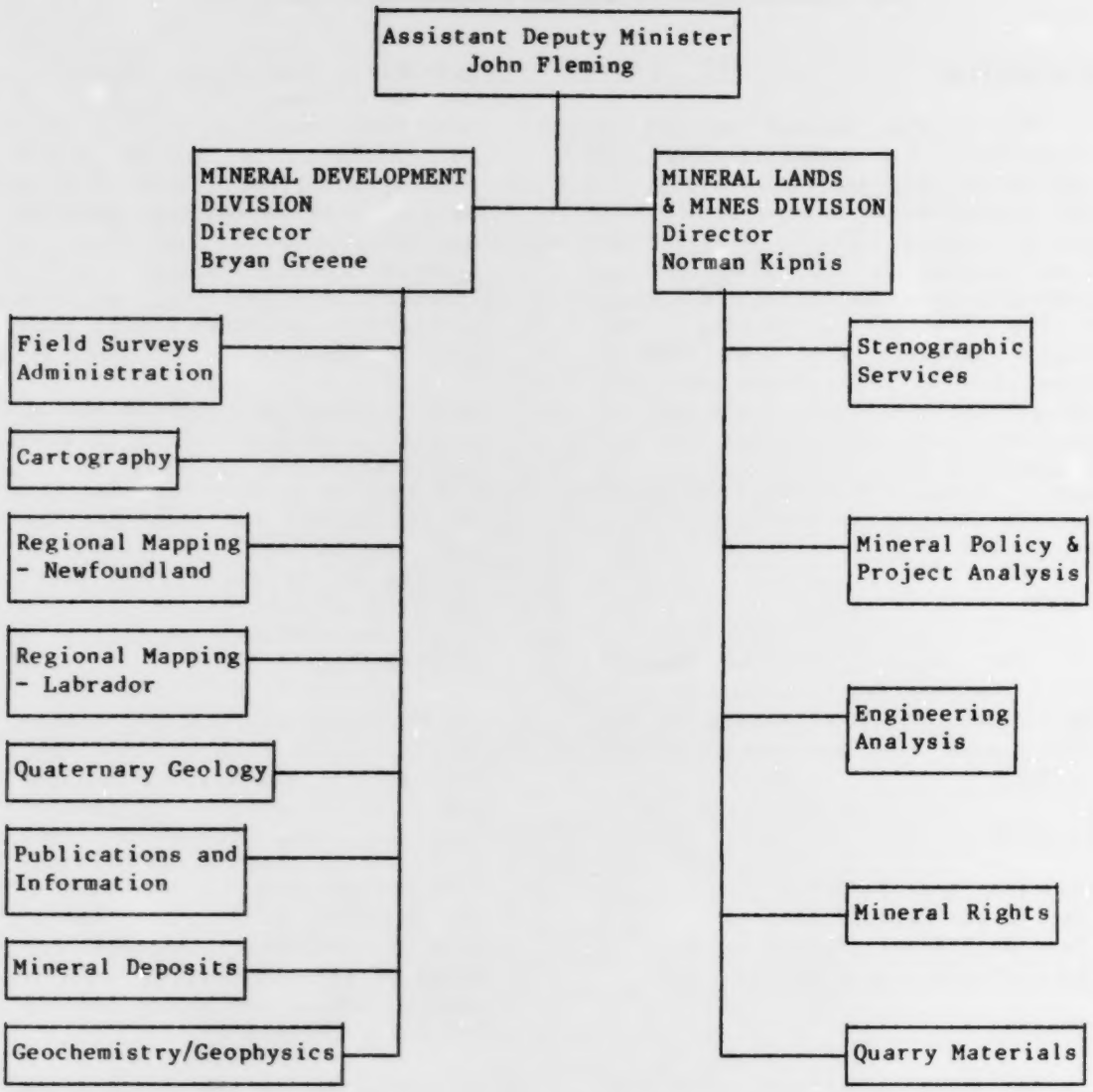
13. A review was undertaken of energy use and cost in government-owned buildings. The purpose of this review was to match the government building inventory with energy use and department.

14. In cooperation with the Energy Programs Division, a one-day seminar was organized for school board superintendents and business managers in St. John's. This seminar was well attended and a report containing all the presentations is being prepared.

15. The division continued to monitor and analyze all energy-related programs, federal and provincial, which are provided

in the province. These evaluations enable the provincial government to compare success with similar programs throughout Canada, to ensure that the province is keeping pace, and to ensure that an equitable share of federal funding for energy purposes comes to Newfoundland and Labrador.

ORGANIZATIONAL CHART
MINES BRANCH



MINES BRANCH
MINERAL LANDS AND MINES DIVISION
MINERAL RIGHTS SECTION

INTRODUCTION

The Mineral Rights Section is responsible for administering the legislation and policies related to the acquisition of mineral rights. Mineral rights can be obtained by ground staking on the island and map staking in Labrador. Some small areas of the province containing known mineral deposits are classified as Exempt Mineral Land. These areas are not open for staking, but the government may, from time to time, call for proposals to develop the resources in these areas. The St. Lawrence fluorspar mining project illustrates the process.

BUDGET

The budget for the Mineral Rights Section for the fiscal year 1984-85 was $96,700. Estimated net revenue from fees and map sales was $10,000.

PERSONNEL

1 Manager: Noel F. Gover
1 Geologist: Kenneth Andrews
1 Records Officer: Harold Hannon
1 Cartographer: Gary Martin

ACTIVITES

The main activities for 1984 consisted of:

(1) Recording claims and issuing mineral licences and mining leases.

(2) (a) Reviewing exploration reports for work carried out on mineral licences for compliance with the Mineral Act and Regulations. If sufficient assessment work has not been done, the licence is cancelled. When a licence is cancelled for this or any other reason, a notice of cancellation is published in the Newfoundland Gazette. The notice specifies the licence number, licence holder, location, and the date the land covered by the licence will come open for staking.

When licences are surrendered or expire, a similar notice is also published in the Gazette.

In all cases, the date set for the opening of the land for staking is 31 clear days after the date of publication. In this way, no interested staker is at a disadvantage.

(b) Reviewing exploration reports on all other mineral holdings, for example, concessions and fee simple mining grants, for compliance with the Mineral Holdings Impost Act. The value of the exploration work is reported to the Director of Tax Compliance. This is necessary because the value of the exploration work is used to reduce the impost payable for any given year.

(3) Distributing to the exploration sector a quarterly report of the mineral licences cancelled or surrendered, and a monthly microfiche update, to subscribers, of copies of the claims maps which have had changes made to them during the month.

(4) Checking, for accuracy, all documents involving mineral land sur-

rendered to the Crown by plotting the areas on the 1:50,000 scale claims maps and verifying the descriptions.

(5) Recommending changes to legislation, regulations and policies.

Statistical Summary, 1984

No. of Claims Recorded	No. of Claims Surrendered/Cancelled	No. of Claims in good standing on December 31, 1984	No. of Extended Licences issued	No. of Mining Leases issued
11,048	6,674	19,662	4	2

BRINCO: Area surrendered in 1984 = 30,885 ha; area retained = 95,105 ha.

MINES BRANCH
MINERAL LANDS AND MINES DIVISION
QUARRY MATERIALS SECTION

INTRODUCTION

The Quarry Materials Section is responsible for administration of the Quarry Materials Act (1976) and associated regulations. The main activities of this section deal with the processing and issuance of quarry permits and leases for the removal of sand, gravel and stone, peat and beach material. Permit holders range from individuals to large construction companies. The permits are issued for periods ranging from 1 to 12 months. The quarry leases are generally issued for 5-year periods.

BUDGET

The budget for the operation of the section for the 1984-85 fiscal year was $73,900.

PERSONNEL

1 Manager: John J. Sullivan
1 Clerk II: Joanne Janes
1 Survey Inspector: (Vacant)

REPORT

The total recorded production of quarry materials for 1984 was 4,130,000 metric tonnes for a value of $17,758,000. Revenues collected by way of rentals and royalties amounted to $138,500.

Peat production (both horticultural and fuel) was minimal because the areas under permit or lease are in the experimental stages to determine optimum extraction methods. The two largest peat permit areas are at Bishops Falls (50 hectares) and at Island Pond north of Gander (200 hectares). Two regular (one-year) quarry permits were issued for the removal of peat in 1984, and 37 domestic peat permits were issued, mostly in the Avalon Peninsula area for horticultural use.

Five survey inspections were made prior to the issuance of quarry leases to areas in the St. John's quarry management area (at the intersection of Routes 1 and 2) and near Holyrood (off Route 62).

Monitoring of quarry activities was conducted on two occasions at the St. John's management area. Investigations to check for compliance with the quarry regulations and special conditions were also done at six other sites during 1984. A quarry site at Pigeon Cove near St. Barbe was visited several times by representatives of the department because of complaints by nearby residents. As a result, the quarry operation was closed and the operator was ordered to rehabilitate the site.

The division received twenty-seven complaints concerning the removal of quarry materials. Twelve of these were investigated by the R.C.M.P., at our request, to have illegal removal stopped. One case resulted in a prosecution and fine.

During the 1984 field season, seven beaches were surveyed. The purpose was to update our information on the condition of the beaches and to set limits on beach removal or to ban removal. These surveys were mostly on the Great Northern Peninsula where aggregate materials are not produced commercially. The beach material is generally used for concrete aggregate and in the installation of household sewer systems.

PERMITS ISSUED IN 1984

Regular Quarry	Highways Quarry	Beach	Domestic Peat	Quarry Leases
188	108	160	30	5

MINES BRANCH
MINERAL LANDS AND MINES DIVISION
ENGINEERING ANALYSIS SECTION

INTRODUCTION

The mandate of Engineering Analysis is to implement policy and regulations governing the establishment, operation and termination of mining properties. The monitoring of mining operations, the evaluation of new mining and processing methods, and the review and analysis of related mineral policy are also within the scope of this section.

BUDGET

The budget for Engineering Analysis for fiscal year 1984-85 was $250,000.

PERSONNEL

Two professional engineering positions are authorized for this section. Because of recruiting difficulties, it was not until near the end of the year that the second engineer was hired.

PROJECTS

New Venture Equities Limited

During 1984, a site visit was made to the property near Isle aux Morts to assess the progress in driving an adit to intersect the mineralized zone. The company's activities were designed to produce a prefeasibility report, which was received in January, 1985, and was evaluated by the section.

Aid was given to this company through providing cost estimates on road construction, arranging meetings with the private sector and providing a forum where the company representatives could have access to all government agencies who would have an interest in the project.

Baie Verte Mines Monitoring Committee

This committee is composed of provincial and federal representatives appointed to review the Baie Verte operation on a continuous basis because of government financial involvement. Regular meetings with the company provided up-to-date information and results in a monitoring of all aspects of the operation. The major function of Engineering Analysis at these meetings was to review plans and activities from the provincial perspective of resource management.

Strange Lake

Dialogue continued with the Iron Ore Company of Canada on the Strange Lake property in northern Labrador. During 1984, a contract was let to C-CORE to perform a bathymetric survey of Anaktalak Bay to determine if this bay is navigable; no previous depth soundings had been done there. Anaktalak Bay is a possible staging point for a road from the coast to Strange Lake. The work performed by C-CORE confirmed that the bay is deep enough for ocean-going vessels.

Existing Mining Properties

The monitoring of existing mining properties is a major task of the section. All companies were visited at least once during 1984; the lack of manpower prevented more frequent visits. From the visits, more knowledge of the operations was gained to help ensure that the prov-

Mineral Development Agreement

Under this agreement, a program was developed for both provincial and federal projects. Newfoundland will perform an assessment of tailings left from abandoned mining operations to determine if there are any economic values left in the material. A second project will reassess closed mines to determine if alternate mining methods could result in reopening.

The federal projects will study increased iron ore recovery, iron ore pellet binder substitutes, and potential mineral deposits assessments. Work will be starting in 1985 on these projects.

In 1984, a contract was given to Noranda Exploration to obtain 175 m of drill core at a base metal deposit at Tally Pond, central Newfoundland, for metallurgical testing by CANMET. The cost was shared by Noranda and the province and the laboratory work was funded by the federal government.

Slate

Further assessment of the Bay d'Espoir slate quarry showed that, while the rock quality is good, operating costs would be too high. The geology in the area is such that much of the rock is waste, thus increasing the unit cost of the finished product to an unacceptable level.

The Nut Cove quarry on Random Island was considered by slate producers from Vermont to be of very good quality. While they did not take an active interest in development, a local person has pursued the prospect of reactivating the quarry.

Wabush Mines Manganese

In 1984, Wabush Mines expressed an interest in producing a manganese byproduct from its iron ore concentrate. Discussions were held with the company to examine the feasibility of establishing the plant in Labrador. This section prepared cost estimates on relocation of the grinding plant from Point Noire, Quebec, to Wabush as well as the cost of providing electrical energy.

OTHER PROJECTS

- Review of operational plans submitted by quarry operators prior to the issuance of quarry leases.

- Assistance to Newfoundland Zinc Mines Limited and Newfoundland Minerals Limited in having dredging done at their docks.

- Observer status on the committee coordinating the complete closure of Buchans mine.

- A continuous program to ensure that abandoned mining properties are maintained to acceptable safety and environmental standards.

MINES BRANCH
MINERAL DEVELOPMENT DIVISION
MINERAL POLICY AND PROJECT ANALYSIS SECTION

This section plans, directs and conducts a continuous program of data analysis of industry growth patterns, capital requirements, employment, infrastructure requirements, etc. to determine the effectiveness of government policies and to predict requirements for government servicing. It attempts to identify areas for greater provincial benefit from the mineral industry, and conducts specialized studies as required. It plans and supervises the collection and compilation of comprehensive statistical data on all aspects of the mineral industry, including market information on commodities available in the province.

Summaries have been compiled on all known minerals in Newfoundland and Labrador. These summaries include information on uses, world supply and demand, Canadian supply and demand, Newfoundland production if any, substitute materials, and an outlook for each commodity.

The section has developed extensive statistical and analytical capabilities which are computer based. Some examples of these capabilities include sensitivity analysis, detailed cashflow analysis, statistical summaries, graphics, etc. A monthly cashflow model has been created as an extension of the main model.

Documentation of the cashflow model has been completed, providing a step-by-step guide for running the model and details of enhancements that have been made.

Computer modelling for the mining taxation study was completed during 1984. All programs and models have been entered into the computer and preliminary runs have been obtained. This study is a joint project with the Department of Finance.

Several mining proposals were evaluated during 1984. Included in these was one from Minworth Limited of Derbyshire, England, associated with potential reopening of the St. Lawrence fluorspar mines. Others included a prefeasibility study from New Venture Equities Limited of a gold deposit on the southwest coast of Newfoundland and a prefeasibility study of separation of manganese from the Wabush Mines iron ore concentrate.

A number of major studies were initiated in 1984. Included in these were: barite, silica, pyrophyllite, clays and shales, brick, exploration, aggregates and building stone. All are continuing, with completion dates in 1985.

Several company profiles were prepared. New files were compiled on companies interested in prospective mining opportunities in the province and existing files on present operators were modified on a continuous basis. Status reports on all the mines in the province were updated on a regular basis. Weekly reports were prepared on the operation of Baie Verte Mines Inc.

Bimonthly mining updates were modified for larger distribution. Other government departments that utilize information from this section were added to the distribution list.

Due to the provincial government's commitments to Baie Verte Mines Inc., the section is represented on the federal/provincial

monitoring committee and produced several cashflow and profit-loss projections for the committee.

This section worked in conjunction with other government departments on several projects, including particularly the Department of Finance and the Department of Development.

Three sets of survey forms were administered by the section in 1984, namely: (a) annual survey of mining operations; (b) annual survey of sand and gravel operators; and (c) annual survey of mills.

Survey forms were mailed in January, 1984, and replies were received throughout the year. After their receipt, the forms were edited for completeness and accuracy, and the company or individual was contacted if necessary. All the statistics were then compiled and computer coded.

The section participated in the annual federal/provincial committee meeting on mineral statistics, which was held in Quebec City in October, 1984.

The section maintains an economic index file for mineral commodity prices (e.g. copper, iron ore, zinc), interest rates, foreign currencies, and stock market indicators. These data are used to graph trends and make mining industry forecasts. The graphics and reporting facilities of the computer system have been enhanced for this purpose. In addition, data obtained from Energy, Mines and Resources Canada and Statistics Canada have been used to enlarge the database.

LABRADOR OFFICE

In January, 1984, a regional office was opened in Wabush. The staff of this office are responsible for monitoring the provincial iron ore industry to identify developmental opportunities and to study local activities or trends which may affect the industry.

This office monitors employee hirings at Iron Ore Company of Canada and Wabush Mines. Current activities and future plans are discussed in regularly scheduled meetings with appropriate operating and management staff.

During 1984, a study of industrial supply businesses established in Labrador West was completed. A comprehensive regional statistics database was also established.

The Department of Career Development and Advanced Studies was represented in 1984 by our Mineral Industry Analyst on the Community Adjustment Committee of Labrador City/Wabush. This committee was established by the federal government as a result of layoffs at I.O.C.C. and Wabush Mines in 1982 and it coordinated the expenditure of $1.6 million of allocated funding under various social programs.

PERSONNEL (St. John's)

Byron Hynes - Manager, Mineral Policy & Project Analysis
Brian Hurley - Economist
Della Stevens - Economist
Brian Collins - Economist
Dennis Davis - Economist
Maurice Sheppard - Economist/ Statistician
Al Roper - Mineral Industry Analyst (Labrador)
Steadman Dicks - Statistical Officer (Labrador)

BUDGET

The total budget for the fiscal year 1984/85 was $276,400.

SUMMARY STATISTICS
NEWFOUNDLAND AND LABRADOR MINING INDUSTRY

DATE 09/12/85

	1982	1983	1984 (Prelim.)	1985 (Est.)
Value of Production				
IOCC	490,702,000	478,196,000	581,825,323	600,000,000
Wabush	173,146,524	181,799,304	226,178,833	260,000,000
Baie Verte	446,892	3,347,351	25,119,856	40,000,000
Cons. Rambler	9,048,732	-	-	-
ASARCO	3,347,351	-	6,209,151	-
Nfld. Zinc	13,916,151	15,385,380	14,776,700	17,000,000
Nfld. Minerals	603,446	1,140,659	1,764,931	1,600,000
Flintkote	3,437,863	3,779,326	4,842,508	5,000,000
Dunville	1,474,147	1,810,682	2,102,238	2,000,000
Others	18,261,000	31,235,000	28,811,000	30,000,000
TOTAL	714,384,106	716,693,702	891,631,540	955,600,000
Value of Shipments	646,762,000	807,003,000	993,534,000	1,000,000,000
Expenditure-Exploration and Related Activities	12,615,000	7,720,000	8,000,000	10,000,000
Mineral Lands Statistics				
Claims Staked	4,670	4,522	11,048	12,000
Claims Dropped	11,165	7,751	4,374	5,000
Claims in Good Standing	18,517	15,288	19,662	20,000
Gross Domestic Product	4,509,000,000	4,938,000,000	4,900,000,000	-

MINES BRANCH
MINERAL DEVELOPMENT DIVISION

INTRODUCTION

The Mineral Development Division is responsible for obtaining and disseminating information on the geology and mineral resources of Newfoundland. The division functions as a geological survey with two major objectives:

1. to promote exploration and development of the province's mineral resources by providing basic geoscientific data indicating areas where mineral deposits may be found, and

2. to provide the geoscientific data necessary for proper management of the province's mineral resources.

In fulfilling its role, the division carries out field and office programs in a number of disciplines related to mineral resource development. These include geological, geophysical and geochemical surveys, evaluation of mineral deposits and resource development potential, and development and maintenance of mineral resource information systems for government, the mineral exploration industry and the general public.

ORGANIZATION AND STAFF

The Mineral Development Division is composed of the director's office and eight sections: Regional Mapping - Newfoundland, Regional Mapping - Labrador, Geochemistry, Mineral Deposits, Quaternary Geology, Publications and Information, Cartography and Administration (Figure 1).

The director is responsible for general administration of the division, including budgeting, organization, program planning, and coordination of activities.

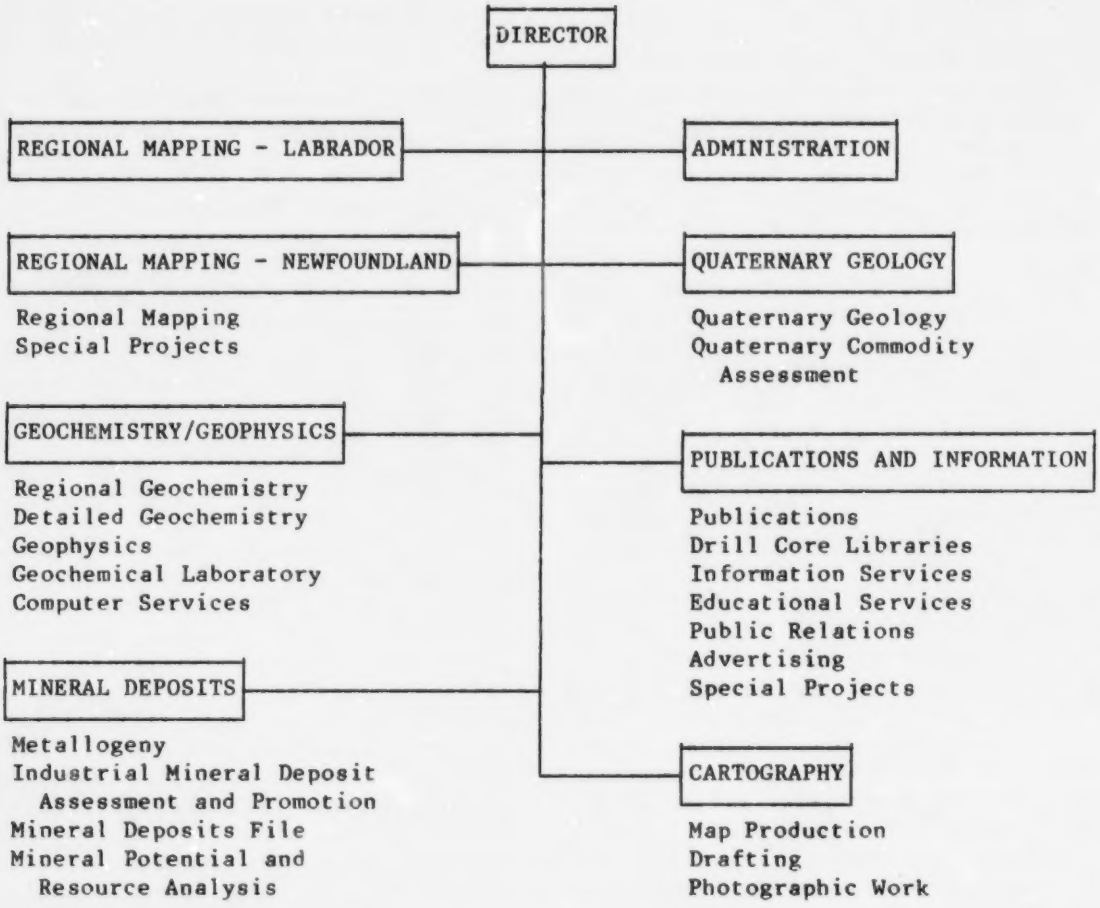
The Regional Mapping Sections carry out programs of geological mapping and related studies, aimed at the provision of reliable, comprehensive geological maps and reports for all areas of the province, with data accumulated in sufficient detail to allow competitive mineral exploration to proceed. In general, mapping is carried out for publication at the 1:50,000 scale in Newfoundland and at the 1:100,000 scale in Labrador. Maps at these scales are available for approximately 40 percent of Newfoundland and 30 percent of Labrador.

The Geochemistry Section carries out regional and detailed geochemical field surveys. Regional surveys to date have concentrated on reconnaissance lake sediment geochemistry, in order to provide a rapid guide to mineral potential over large areas. All of Newfoundland and about 75 percent of Labrador have been surveyed in this manner. Detailed surveys are carried out in areas indicated by the regional data. The section is also responsible for the computer unit, which coordinates computerization of data from all sections of the division, and for the geochemical laboratory, which performs the assays and analyses required in support of field programs. A geophysicist was added to the section late in 1984.

The Mineral Deposits Section is responsible for metallogenic and mineral deposit studies, for assessment of industrial mineral deposits, and for maintenance of the mineral deposits file. Metallogenic and mineral deposit studies are undertaken to increase our knowledge of

Figure 1

MINERAL DEVELOPMENT DIVISION
ORGANIZATION AND RESPONSIBILITIES



the geological environments in which mineral deposits occur and, thus, provide guidelines which the mineral exploration industry can use to increase the effectiveness of the search for new deposits. The emphasis is slightly different in the industrial mineral area, where private industry is reluctant to spend exploration dollars; in this area, the section strives to identify deposits with immediate potential for development, and to promote these opportunities to the business community. The section also maintains a mineral deposits file, which consists of manual and computerized files with relevant data on all known mineral occurrences in the province, as well as a series of mineral occurrence maps for the province.

The Quaternary Geology Section is responsible for all research related to the Quaternary (surficial) deposits of the province. The section carries out a surficial mapping program to delineate the distribution of surficial materials and to determine the effects of the various glacial

flow regimes on the interpretation of data from exploration programs. The section is also involved in a program to map and evaluate the mineral aggregate resources of the province, particularly along transportation routes, in municipal areas, and in areas of proposed major developments.

The Publications and Information Section maintains geological files and drill core libraries and makes published and unpublished information on the geology and mineral resources of the province available to the public. The section edits and prepares for publication reports emanating from the division's field programs.

The Cartographic Section prepares all maps and figures required by the division. In 1984, it set up a new photographic system to handle the photography needs of the division.

The Administration Section provides accounting services to the division, maintains field equipment stores and vehicles, and provides logistical and communication support for field parties.

At the end of 1984, the permanent and temporary staff of the division numbered 76 persons, distributed as indicated in Table I. Of these, 21 of the permanent staff and 20 of the temporary staff are geoscientists. A total of 55 geoscience students were employed as seasonal assistants on field parties in 1984.

FUNDING

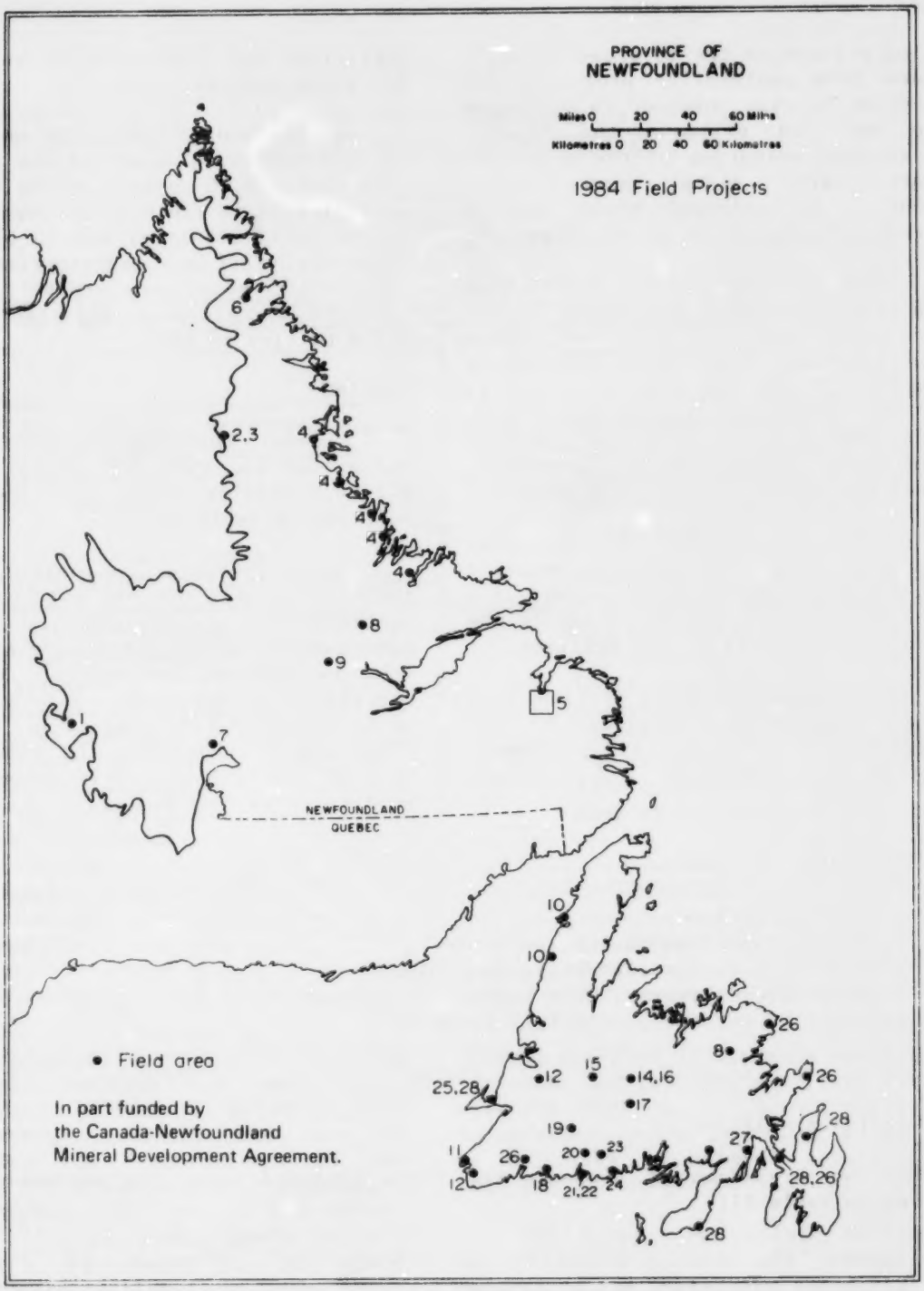
Mineral Development Division's budget for the 1984-1985 fiscal year was $4.1 million (net), allocated as outlined in Table II.

Major increases in funding over 1983 levels were due entirely to the initiation of new projects under the Canada-Newfoundland Subsidiary Agreement on Mineral Development, which was signed in May, 1984. This agreement is for a five-year term (1984-1989) and will involve the expenditure of $22 million. This amount is subdivided as follows:

	Total*	1984-1985
1. Federally funded and delivered projects	$12.1	$2.0
2. Provincially funded and delivered projects	3.4	0.5
3. Provincially delivered, cost-shared (50 percent federal, 50 percent provincial) projects	6.5	1.3
Total	$22.0	$3.8

* Totals in millions.

A further breakdown of projects and costs included under the agreement is shown in Table III.


PROVINCE OF
NEWFOUNDLAND
Miles 0 20 40 60 Miles
Kilometres 0 20 40 60 Kilometres
1984 Field Projects
NEWFOUNDLAND
QUEBEC
• Field area
In part funded by
the Canada-Newfoundland
Mineral Development Agreement.

LABRADOR

1 Industrial Minerals in Labrador West **P.L. Dean and J.R. Meyer**

2 Quaternary Mapping and Drift Exploration in the Strange Lake Area, Labrador **M.J. Batterson, D.M. Taylor and S.V. Vatcher**

3 Aggregate Resource Inventory Along Possible Routes From Strange Lake, Labrador to the Atlantic Coast **M.J. Ricketts and J.P. Hayes**

4 Coastal Labrador Community Aggregate Resources **M.J. Ricketts**

5 Geology of the Paradise River Region, Grenville Province, Eastern Labrador **Charles F. Gower, Nathaniel Noel and Timothy Van Nostrand**

6 Nain-Churchill Province Boundary: A Preliminary Report on a Cross-section Through the Hudsonian Front in the Saglek Fiord Area, Northern Labrador **F. Hengel**

7 The Labradorian Orogeny: Geochronological Database **G.A.G. Nunn, A. Thomas and T.E. Krogh**

8 Quaternary Mapping Moran Heights, Labrador and Gander-Gambo Area, Newfoundland **D.G. Vanderveer**

9 Metallogeny of Peralkaline Rocks in Labrador: Strange Lake Peralkaline Granite and Letitia Lake (Mann #1) Showing **Randy Miller**

WESTERN NEWFOUNDLAND

10 Cambrian-Ordovician Biostratigraphic Investigations, Great Northern Peninsula, Western Newfoundland **W.D. Boyce**

11 Biostratigraphic and Paleoenvironmental Significance of Newly Discovered Paleoniscid Fish and Vascular Plant Remains From the Snakes Bight Formation (Anguille Group) Near Codroy, Southwestern Newfoundland **W.D. Boyce**

12 West Coast Shale Project **P.L. Dean and J.R. Meyer**

13 Geological Mapping of Cambrian and Ordovician Sedimentary Rocks of the Bellburns (12I/5/6), Portland Creek (12I/4) and Indian Lookout (12I/3) Map Areas, Great Northern Peninsula, Newfoundland **Ian Knight**

CENTRAL NEWFOUNDLAND

14 Metallogeny of the Tally Pond Volcanics, Victoria Lake Group, Central Newfoundland **B.F. Kean**

15 Quaternary Mapping, Central Volcanic Belt **B.G. Sparkes**

16 Drift Prospecting in the Victoria and Tally Pond Areas, Central Newfoundland **MaryAnn Mihychuk**

17 Geology of the West Part of Great Burnt Lake (12A/8) Area **S.P. Colman-Sadd**

SOUTHERN NEWFOUNDLAND

18 Geology of the Burgeo Map Area (11P/12), Southwestern Newfoundland **S.J. O'Brien and S.L. Tomlin**

19 Geology of the West Half of the Burnt Pond Map Area (12A/3), South-Central Newfoundland **S.J. O'Brien and S.L. Tomlin**

20 Uranium Mineralization in the Bay du Nord Group, Southwest Newfoundland. **S.J. O'Brien and S.L. Tomlin**

21 Geology of the Burgeo Granite and Associated Rocks in the Ramea (11P/11) and La Hune (11P/10) Map Areas, Southern Newfoundland **W.L. Dickson, P.W. Delaney and J.C. Poole**

22 Geology of the Francois Granite, South Coast of Newfoundland **J.C. Poole, P.W. Delaney and W.L. Dickson**

23 Geology of the Grey River Area, Southwest Coast of Newfoundland **R. Frank Blackwood**

24 Follow-up Geochemistry of Metalliferous and Mineralized Granitoid Terrain in Newfoundland **John McConnell**

25 Stratigraphy and Sedimentology of Some Coal Seams in the Carboniferous Bay St. George Basin, Southwestern Newfoundland **S. Solomon and R.S. Hyde**

EASTERN NEWFOUNDLAND

26 Geochemical Follow-up Surveys, Eastern Newfoundland **A.J. Butler**

27 Auriferous Specularite-Alunite-Pyrophyllite Deposits of the Hickey's Pond Area, Northern Burin Peninsula, Newfoundland **Allan Huard and Cyril O'Driscoll**

28 Industrial Minerals Survey - 1984 **A.F. Howse and C.J. Collins**

Numbers correlate with those on the accompanying map

Table I

Mineral Development Division Staff, 1984

	Permanent	Temporary	Total
Director's Office	2	0	2
Administration	3	2	5
Labrador Mapping	4	2	6
Newfoundland Mapping	4	4	8
Geochemistry	10	8	18
Mineral Deposits	4	5	9
Quaternary Geology	2	7	9
Publications and Information	7	8	15
Cartography	3	1	4
	39	37	76

Table II

Mineral Development Division Budget, 1984-1985

	Gross Expenditure	Revenue	Net Expenditure
Administration (includes Director's office	$ 439,800	$122,700	$ 317,100
Regional Mapping	1,221,800	317,100	904,700
Geochemistry	1,160,600	163,300	997,300
Mineral Deposits	837,000	157,800	679,200
Quaternary Geology	671,800	-	671,800
Publications and Information (includes Cartography)	615,500	74,500	541,000
Totals	$4,946,500	$835,400	$4,111,100

Table III
Canada-Newfoundland Mineral Development Agreement
(1984-1989)

	Canada Funded and Delivered	Newfoundland Funded and Delivered	Jointly Funded Newfoundland Delivered
	(thousands of dollars)		
GEOSCIENCE			
Mineral Deposit Studies	2,585	-	-
Geological Investigations	1,045	200	-
Regional Geochemistry	1,090	-	-
Geophysics	1,470	400	-
Overburden Studies	1,760	400	-
Sand and Gravel		350	-
Support Services		600	-
Industrial Mineral Studies			370
Geological Mapping			5,130
Analytical and Other Technical Services			1,000
Subtotal	(7,950)	(1,950)	(6,500)
MINING AND MINERALS TECHNOLOGY			
Deposit Assessment	900	600	-
Concrete Alkali Studies	100	-	-
Iron Ore Pelletizing	500	-	-
Subtotal	(1,500)	(600)	-
ECONOMIC DEVELOPMENT STUDIES			
Industrial Mineral Commodity and Industry Studies	700	250	-
Competition and Productivity Studies	550	-	-
Subtotal	(1,250)	(250)	-
PUBLIC INFORMATION, EVALUATION AND ADMINISTRATION	1,400	600	-
TOTALS	12,100	3,400	6,500

MINES BRANCH
MINERAL DEVELOPMENT DIVISION
QUATERNARY GEOLOGY SECTION

INTRODUCTION

The Quaternary Geology Section (formerly called the Environmental Geology Section) consists of a senior geologist (D.G. Vanderveer); one permanent project geologist (F.T. Kirby); five temporary project geologists (B.G. Sparkes, M.G. Ricketts, D.J. Bragg, M. Mihychuk and M.J. Batterson); one temporary geological technician (B. Downton); one temporary computer programmer analyst (J.B. Atkinson) on loan from the computer unit; and a laboratory assistant (S.C. Blackwood). The section has considerable interaction with other government departments through the provision of mapped and raw data used in agriculture and forestry mapping programs and during road construction. The section is also a primary contact for municipal planners and consultants involved in collecting resource or geotechnical data for use in road construction, water and sewer projects, municipal developments or other major developments (e.g. construction of offshore supply and service bases or concrete platforms). The mineral exploration industry has also increasingly found the Quaternary mapping data useful in tracing mineralized float back to a source in bedrock (e.g. Noranda's Tally Pond discovery).

The statistics on data distribution directly from the section (excluding information supplied to users by the Publications and Information Section) during 1984 showed 89 maps of aggregate data, 3 aggregate resource reports (including 29 colored 1:250,000 scale maps in each report), 47 Quaternary maps, 10 peat maps, various copies of form data (raw field data) plus particle size analyses, and a number of geology maps. A summary of users indicated that four were government (federal, provincial, municipal), 17 were consulting firms (planning and geotechnical requests related to construction), and some were mineral exploration firms.

BUDGET

The total budget for the section was $650,650, of which $291,950 was under the Mineral Development Agreement. Of the total, $227,684 was devoted to aggregate assessments, $343,000 to Quaternary mapping, and the remainder to project supervision and laboratory support.

PROJECT SUMMARIES

Special projects

Project Coordinator: D.G. Vanderveer
Senior Geologist

(A) Moran Heights, Labrador (13K/10)

At the request of Saarberg Interplan, detailed field work was conducted in the Moran Heights area (13K/10, southwest corner) of Labrador, an area containing numerous boulders, mineralized with uranium, but with no known source in bedrock.

Quaternary mapping and airphoto analyses at 1:50,000 and 1:15,840 scales were able to establish two ice flow events; namely, (i) a regional flow towards the northeast and (ii) a later advance to the north from a small lobe of ice that occupied the valley area at Moran Heights.

Landform data indicate that a major recessional moraine and remnants of lateral moraines are evident in the area. The materials in the area of the main boulder concentration are glacial till derived or transported from a source to the south or southwest.

Detailed till sampling is recommended for further follow-up exploration in order to define the bedrock source of the mineralization.

(B) Gambo, Newfoundland (2D/16W)

Regional Quaternary mapping was started in the Gander-Gambo-Weirs Pond area of Newfoundland in 1983 and was continued in 1984 with concentration on the west half of the Gambo (2D/16W) map area.

Landform classification and field work confirm that two ice flows affected the area; the earlier was easterly while the latter was topographically controlled with radial ice flow and drawdown towards Gander Bay and Freshwater Bay, respectively. In addition, drift thicknesses south of Gander Lake are considerably thicker than in other parts of the area.

The area is of interest for the exploration for gold, and drift prospecting may be an essential component in defining areas of interest and as a means of exploration follow-up.

(C) Interdepartmental Liaison

The senior geologist is the department's representative for referral of land use proposals (through the Interdepartmental Land Use Committee) and for processing Crown land referrals. He also represented the department on ten different Environmental Assessment Committees, the Resource Roads Access Committee, and the Environmental Surveillance Committee during 1984.

Strange Lake area - Quaternary Mapping (1984)
Project Leader: M. Batterson

The Iron Ore Company of Canada located a deposit of niobium, tantalum, yttrium, beryllium and rare earths in northern Labrador in 1979.

Quaternary mapping of the area in 1984 was aimed at determining the regional setting of the deposit in an area of extensive overburden. Till geochemistry, till lithology, and surficial mapping were used to determine the distribution of glacial overburden and to define dispersal fans from bedrock sources.

Total cost of the 1984 phase of the project was about $176,387. This included eight weeks of helicopter-supported field work, during which 750 samples were collected from 450 sites.

Preliminary results indicate that regional drift prospecting techniques (e.g. boulder tracing and till geochemistry) are useful methods to define target areas for bedrock mineralization of the Strange Lake type. These types of surveys are therefore applicable in follow-up studies in areas of identified lake sediment geochemical anomalies or in areas of mineralized boulders with no known bedrock sources.

Drift Prospecting in the Victoria Prospect and Tally Pond areas, Central Newfoundland
Project Leader: M. Mihychuk

Two areas in the Central Volcanic Belt of Newfoundland were selected for detailed study of the glacial stratigraphy, sedimentology, and geochemistry. The aim of the work in 1984 was to establish the dispersal patterns from a known source, the Victoria Prospect, and to determine the origin of massive sulfide float located at Tally Pond.

Site intervals were generally spaced at 200 m over the study areas. Till soil profile sampling of the B, B-C and C horizons, pebble collecting, boulder counting and bedrock sampling were done where possible. At a total of 286 sites, 396 samples and 190 pebble samples were collected.

Results from the 1984 field season have successfully identified (1) the dispersal fan from the Victoria prospect, which extends 1200 m in an east-northeast direction, and (2) that the massive sulfide float at Tally Pond is associated with a yet unknown source to the southwest.

The budget for the 1984 project was about $32,000 (8 months).

Detailed Aggregate Resources Project - Insular Newfoundland
Project Geologist: F.T. Kirby

The Detailed Aggregate Resources Project - Insular Newfoundland is a provincially funded project with a $67,085 budget for 1984-85. The aim of the project is to provide detailed information on aggregate resources within municipal and other planning areas so that planners and local authorities are aware of the aggregate resources within their jurisdiction, and to help plan their optimum use.

Aggregates are an essential component in community or industrial development. Therefore, governments and other planning agencies must recognize their importance and protect them for appropriate uses, especially since high quality aggregates are generally in short supply.

Areas included in the 1984 study were Pasadena, Cormack, Grand Bank - Fortune, and the Conception Bay North area. Approximately 480 samples were collected. Backhoe test pitting and sampling were done on the Wild Cove clay deposit near Corner Brook and a reconnaissance survey was conducted along a proposed transportation route to the Cape Ray gold prospect. All aggregate data are being provided to the Department of Municipal Affairs for inclusion into their municipal planning process, and to assist major industrial development plans. Data are also made available to consulting and contracting firms, developers and any other organizations requiring such data.

Central Volcanic Belt - Quaternary Mapping Project
Project Geologist: B.G. Sparkes

No field work was conducted in 1984 as time was spent compiling earlier data and preparing maps and reports for publication. Since 1978, much of the Central Volcanic Belt of Newfoundland has been mapped at a 1:50,000 scale. Open file releases have been completed for most of this area. These releases have included till geochemical, landform classification, and glacial flow feature maps as well as a report on the glacial geology (Vanderveer and Sparkes).

Three divergent ice-flow directions have been recognized. The earliest flow was southward (160-190) and appears to have affected most of the central part of the area; it is the only flow evident in the southern part of the area. In the western part of the area (Lloyd's River, Star Lake), this flow was succeeded by a southwestward flow (220-250). In the central to eastern part of the area (Lake Ambrose to Grand Falls), the southward flow was followed by a northeastward flow. In the Buchans area, this northeastward flow was succeeded by a southwestward flow which was probably related to flow in the southwestern Red Indian Lake area, and was the latest pulse of ice to affect the area.

A final report is scheduled for release in 1985.

The budget for 1984/85 was $84,615.

Aggregate Resources Inventory
Project Geologist: Dan Bragg

The section has been collecting aggregate resource data throughout the province since 1975 (Kirby et al., 1983). To date, approximately 12,000 samples have been collected.

The computerized database management system selected for the manipulation of the data is the Scientific Information Retrieval (SIR) System. The end product is the Aggregate Resources Inventory System, an interactive database designed for the storage and retrieval of aggregate and surficial geology data.

By the end of 1984, the database held information on 8689 sites, with 45,000 records on file, and new data are continually being added. The system is also being utilized by outside sources for scientific investigation.

In addition to the SIR System, the section is involved in dealing with requests from companies and individuals for information on aggregate resources. Other work includes screening Crown land application referrals and updating the 1:50,000 and 1:250,000 aggregate and geotechnical geology maps as well as compilation of the 1:1,000,000 scale summary maps.

The budget for this project in 1984 was $45,000.

Aggregate Assessments of Possible Transportation Routes From Strange Lake to the Labrador Coast
Project Geologist: M.G. Ricketts

The study was conducted as an aid in the selection of a possible road route from the Strange Lake site (located 150 km inland from Nain) to the coast of Labrador. The route selected follows the prevailing topography, has abundant coarse granular materials, is the shortest, and appears to be the cheapest to construct. A route southward or westward would be longer, would be transverse to topography and would be more difficult and costly to construct.

Two routes were mapped toward the Labrador coast. The route toward the Fraser Valley was not studied in great detail because of major impediments to construction, including the 500 m near-vertical drop from the plateau to the valley floor, and shallow areas at the mouth of Tassissuak Lake, preventing ocean going vessels from entering the lake area. The Ikadlivik Brook route is approximately 130 km long and follows an esker-glaciofluvial outwash system for most of the distance. No major construction problems were identified along this route.

The main objective was to determine the quantity and quality of aggregate material along possible routes. Maps prepared from a study of aerial photographs of a 6 km wide corridor were used as a guide to delineate and sample areas of potential aggregates. Attention was also given to problem or hazardous areas such as rock falls along narrow valley segments. Water depths were estimated in areas where eskers have been dissected by streams or have terminated in lakes. Extensive stretches of bogland and rock outcrops along the route were also noted as well as potentially unstable areas such as those with large deposits of clay and silt, or areas of permafrost.

Provincial funding was provided under the Canada-Newfoundland Mineral Development Agreement at a cost of $115,563.

Regional Aggregate Assessment - Coastal Labrador

Project Geologist: M.G. Ricketts

The Coastal Labrador Aggregate Resource Project was started in 1983 with three objectives: (a) to map aggregate resources in and around isolated coastal communities; (b) to designate areas of extraction in specific planning proposals (e.g. municipal plan); and (c) to ensure that aggregates are preserved to meet appropriate needs. Preliminary plans were made to complete detailed sampling over a two-year period for communities from Lodge Bay in the south to Nain in the north. The original project, in 1983, was funded by the Newfoundland Department of Mines and Energy and the Canadian Department of Regional Economic Expansion (Coastal Labrador Subsidiary Agreement). During 1983, field work was completed in the communities of Lodge Bay, Mary's Harbour, Port Hope Simpson, Charlottetown, Fox Harbour, Black Tickle, Paradise River, Cartwright and Rigolet. Two sets of maps (scale 1:50,000) were compiled, consisting of fifteen maps each. One set includes sample localities and zones of aggregate potential; the other shows surficial geology (landform classification).

In 1984, due to limited funding, field operations were restricted to two days of reconnaissance work in Postville, Hopedale, Davis Inlet, Big Bay (possible relocation site for Hopedale) and Nain as part of the Strange Lake transportation route study.

Results of work in the coastal Labrador area are scheduled for publication in 1985 as a final report plus 1:250,000 scale maps of aggregate potential. Aggregate resource maps and surficial geology maps at 1:50,000 scale will also be made available.

MINES BRANCH
MINERAL DEVELOPMENT DIVISION
MINERAL DEPOSITS SECTION

INTRODUCTION

1984 was a year of new initiatives for the Mineral Deposits Section. The signing of the Canada-Newfoundland Mineral Development Agreement (CNMDA) in May, 1984, faciliated the initiation of new five-year projects in Newfoundland and the hiring of a new project geologist for Labrador. Systematic documentation of the industrial minerals of Labrador was also started by the section in 1984. The CNMDA also resulted in the beginning of systematic mineral deposits research by the Geological Survey of Canada in Newfoundland and Labrador.

The mineral inventory file was essentially completed for insular Newfoundland in 1984 and a new effort was started to computerize the mineral occurrence data system.

INDUSTRIAL MINERALS

Barite

In 1984, a major field project to evaluate the barite resources and potential of the province was completed. The 1984 program focused on the southern Burin Peninsula, where barite occurs in association with the fluorspar veins of the St. Lawrence district. A stream sediment geochemistry survey for barium and other elements of the areas will be released in 1985. The 1983 stream sediment survey of the Avalon isthmus and St. Bride's areas was released in 1984 and revealed several areas of barite anomalies. This resulted in some claim staking and prospecting by industry. A summary report on barite in Newfoundland is being prepared for publication in 1985.

Shale and Clay

At the request of North Star Cement Limited, a field program was conducted in the Corner Brook area in 1984 to find alternate sources of shale for the cement plant in Corner Brook. The project succeeded in locating a supply of low-sulfur shale with the required silica/alumina ratio of 4:1 in the Pinchgut Lake area, 10 km south of the plant.

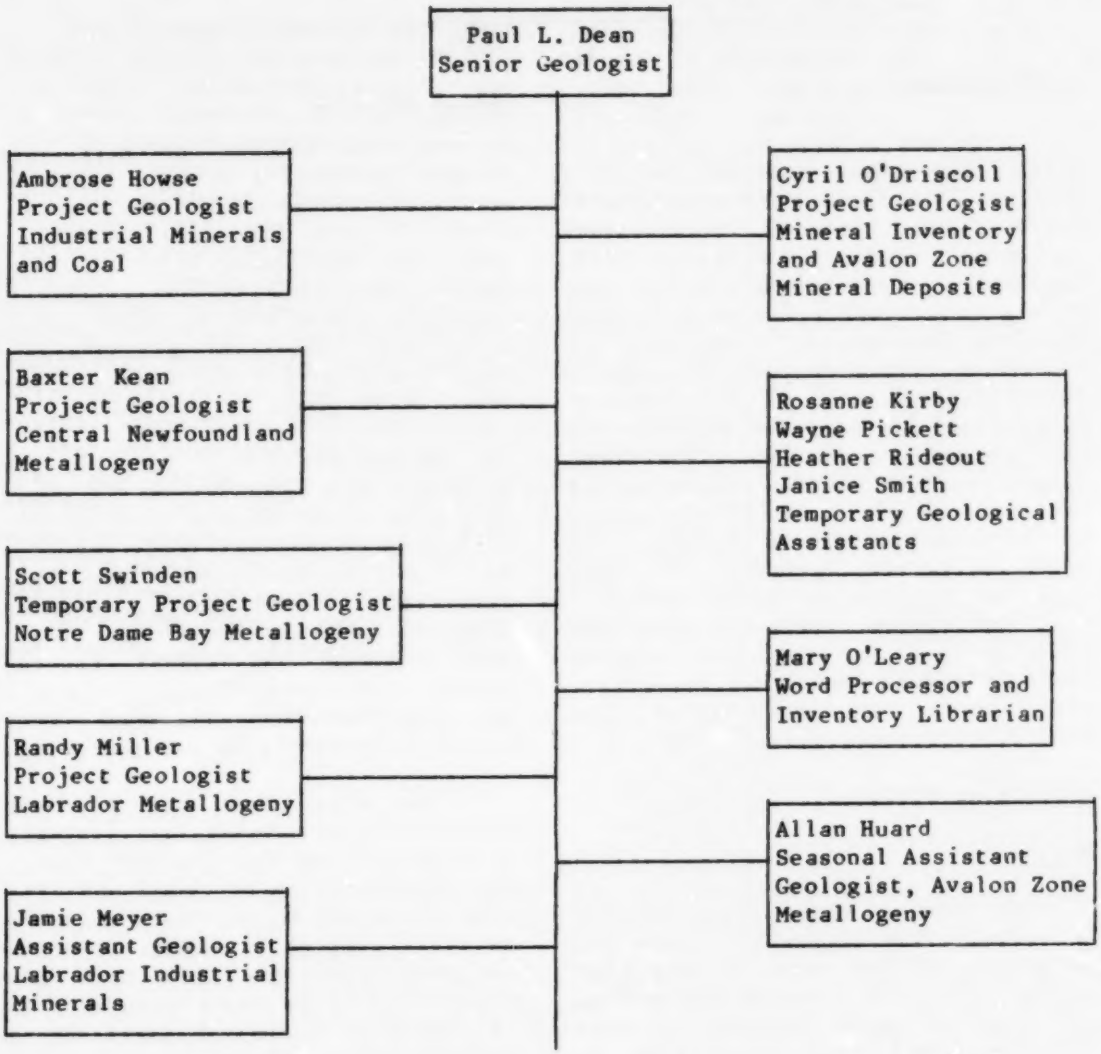
A reconnaissance sampling program was also conducted on the shales at Shoal Point on the Port au Port Peninsula to evaluate their potential for use in the cement and brick industries. Preliminary chemical analyses indicate that these shales are suitable for cement manufacturing. Additional firing tests will be required to determine their suitability for brick manufacturing.

The Wild Cove clay deposit, north of Corner Brook, was evaluated by test pitting for possible use in the manufacturing of brick and other clay products. Firing tests conducted on these samples by CANMET in Ottawa indicate that the Wild Cove clay could be used in brick manufacturing if clay from different parts of the deposit were mixed to give the desired degree of plasticity. The sampling program indicated that this clay deposit is extensive and could support a long-term facility if markets for brick and clay projects expand significantly in western Newfoundland.

Silica and Dolomite in Labrador West

An industrial minerals survey was started in the Wabush/Labrador City area during the 1984 field

MINERAL DEPOSITS SECTION



season. The aims of the project are to evaluate the quartzites of the area as a source of high quality silica and to evaluate the dolomitic marbles for possible use in the pelletization of iron ore concentrate. Preliminary analyses indicate that there are very large tonnages of high quality silica in the vicinity of the Iron Ore Company of Canada's open pit mining operations. These silica deposits could form the basis of a more diversified mineral industry in western Labrador.

Preliminary analyses also indicate that the dolomitic marbles east of Wabush Lake may be suitable for use in the manufacturing of self-fluxing pellets at the Carol Project in Labrador City. However, the deposits are not well exposed and drilling will be required before any further evaluation is made.

MINERAL INVENTORY FILE

The Mineral Occurrence Data System (MODS) is designed to offer an efficient information service on all mineral occurrences in Newfoundland and Labrador. It is a two-part system comprising a mineral inventory file and a computerized mineral index.

The mineral inventory file consists of mineral occurrence descriptions which summarize all the significant available information on known mineral occurrences in the province, from a producing mine to a small indication. In 1984, the preparation of descriptions of known mineral occurrences in insular Newfoundland was essentially completed. The mineral inventory for western Labrador is now seventy percent done and is expected to be completed in 1985.

Seven new mineral occurrence maps at 1:250,000 scale were published in 1984. Those include:

Map 8421	Bonavista	2C
Map 8422	Hopedale	13N
Map 8423	Wesleyville	2F
Map 8424	St. Anthony	2M
Map 8425	Blanc Sablon	12P
Map 8444	Bay of Islands	12G
Map 8445	Gander Lake	2D
Map 8461	Port aux Basques	11O

These maps, which are compiled on a recent geological base, show the locations of mineral occurrences and contain a listing of the name, status and minerals present for each occurrence.

Computerized Mineral Index

The computerized mineral index contains information selectively extracted from the mineral inventory file. It allows for a wide variety of complex data retrievals and manipulations which are not possible with a manual system. The computerized mineral index is complete for seventy percent of the mineral inventory file and will be completed for all of insular Newfoundland by the end of 1985.

METALLOGENIC STUDIES

Metallogenic studies relate mineral occurrences in specific areas to the regional geology and focus directly on mineral deposits and geological units with high mineral potential. Such studies develop models for the mineralizing processes and provide guidelines for mineral exploration. Metallogenic studies were started in 1979 and have focused on the volcanogenic sulfide deposits of the Central Volcanic Belt of Newfoundland.

Projects completed or in progress are: (1) the lead-zinc-silver-gold deposits of the Bay d'Espoir and La Poile areas; (2) the copper deposits of the Great Burnt Lake area; (3) the copper deposits of the

Green Bay-Halls Bay area; (4) the Betts Cove copper deposit; (5) the cupiferous sulfide deposits of central Notre Dame Bay; (6) an assessment of the potential for clastic-hosted base-metal deposits in Newfoundland; and (7) the tin-tungsten-molybdenum prospects of Fortune Bay. These projects have been successful in attracting new exploration projects by the mineral industry and encouraging and supporting ongoing exploration and development programs.

Three new metallogenic projects were started in 1984. These are: (1) the zirconium-niobium-beryllium-rare earths deposits at Strange Lake and Letitia Lake, Labrador; (2) the gold-bearing volcanic rocks of the Burin Peninsula, Newfoundland; and (3) the base metal sulfide deposits south of Red Indian Lake, Newfoundland.

The Burin Peninsula gold project has already been successful in documenting a new gold-bearing geological environment and has stimulated claim staking and exploration by several companies in the northern part of the peninsula.

The study of the Strange Lake deposit is being conducted in cooperation with the Iron Ore Company of Canada.

A study of the Tally Pond base metal sulfide deposit south of Red Indian Lake was started in 1984 in cooperation with Noranda Exploration Company Limited.

MINES BRANCH
MINERAL DEVELOPMENT DIVISION
GEOCHEMISTRY AND GEOPHYSICS SECTION

INTRODUCTION

The role of the Geochemistry Section expanded in 1984 to include geophysics, and to reflect this change the name has been changed to the Geochemistry and Geophysics Section. The organization of the section is illustrated in Figure 1. This expansion in the section's mandate has been funded under the Canada-Newfoundland Mineral Development Agreement, which also is providing additional funding to the geochemical laboratory and the computer unit.

ACTIVITIES

Geochemical Surveys

In 1984, John McConnell carried out the third and last season of field work to follow up some regional geochemical anomalies over granitoid rocks in southern Newfoundland (Figure 2). The purpose of these studies is two-fold: to assess the mineral potential of these rocks, and to develop effective exploration strategies for following up regional geochemical anomalies. Highlights of this project so far are the identification of a new area of tungsten mineralization in the North Bay Granite near Dolland Brook, and the definition of an extension to the tin-mineralized zone of the Ackley Granite. In addition, McConnell conducted a pilot study to evaluate the effectiveness of gold in lake sediment as an indicator of the presence of gold mineralization. Lake sediment samples were collected in the vicinity of the Chetwynd, the Cape Ray and the La Poile gold prospects. In addition to gold, the samples will be analyzed for a variety of other metals.

James Butler completed field work in three areas in eastern Newfoundland, and started work in a fourth in 1984. All four areas contained regional geochemical lake sediment anomalies in base metals (some or all of Cu, Pb, Zn, Co and Ni). The results of this work are still being compiled and assessed.

The results of the regional geochemical surveys carried out by the section in Newfoundland between 1973 and 1982, and by the Geological Survey of Canada in Labrador between 1977 and the present are being compiled by Peter Davenport at scales of 1:1,000,000 and 1:2,000,000, respectively. These provide an overview of the geochemistry of the province useful in mineral exploration, regional geologic and environmental studies. This work is continuing.

Geophysical Surveys

The search for a geophysicist proved to be a very slow process, but was successful with the appointment in December, 1984, of Joan Tod, who will start work in February 1985.

Two unsolicited proposals for geophysical studies were implemented during the year. Nordco Ltd. in association with Hardy Associates started a study to review and assess the geological information contained in geophysical surveys contained in the department's geofiles for the Badger and parts of the Buchans and Noel Paul's Brook areas (12A/16 and parts of 12A/9 and 12A/15). The first phase of the study was carried out in

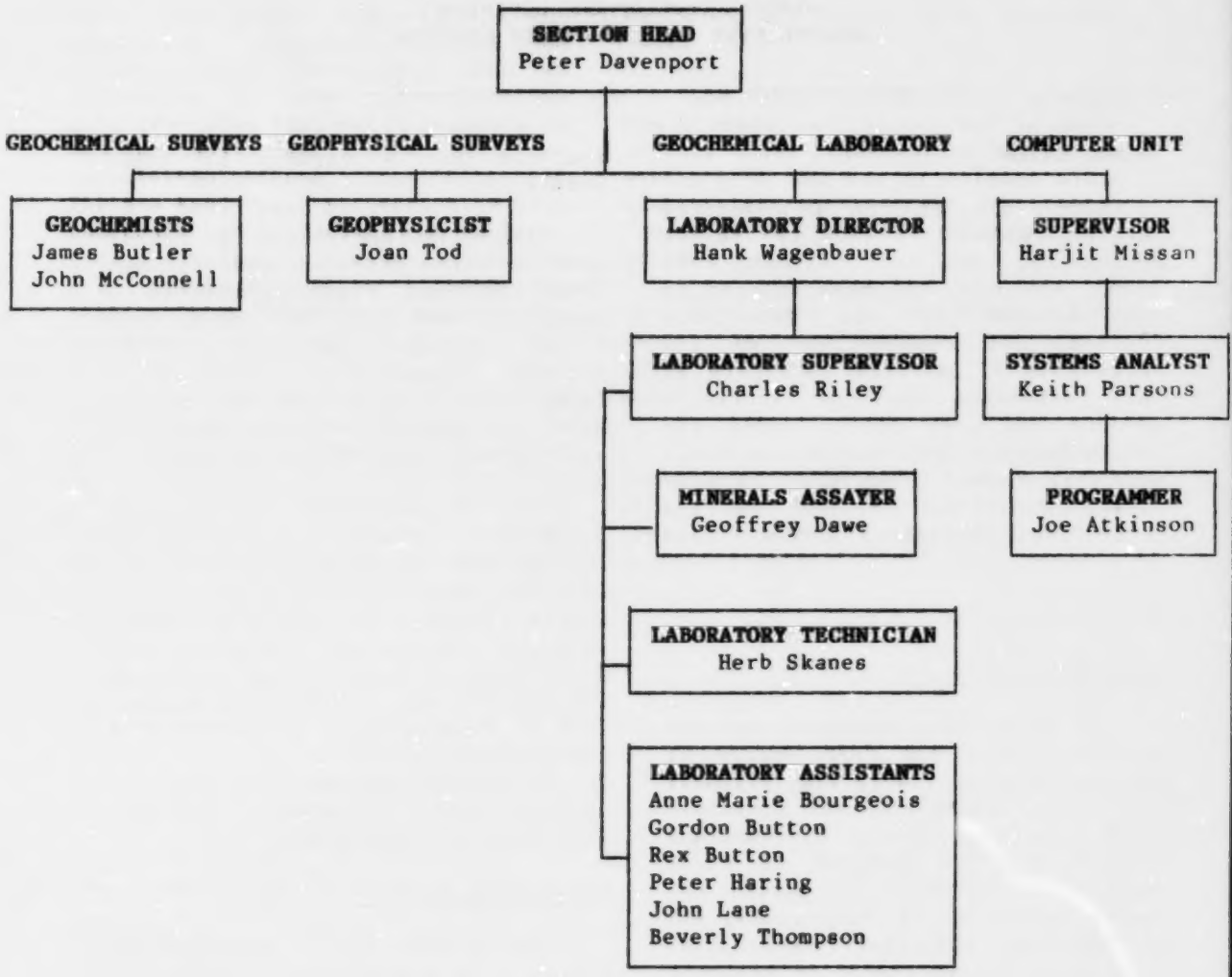


Figure 1: Organization of the Geochemistry and Geophysics Section, December 31, 1984.

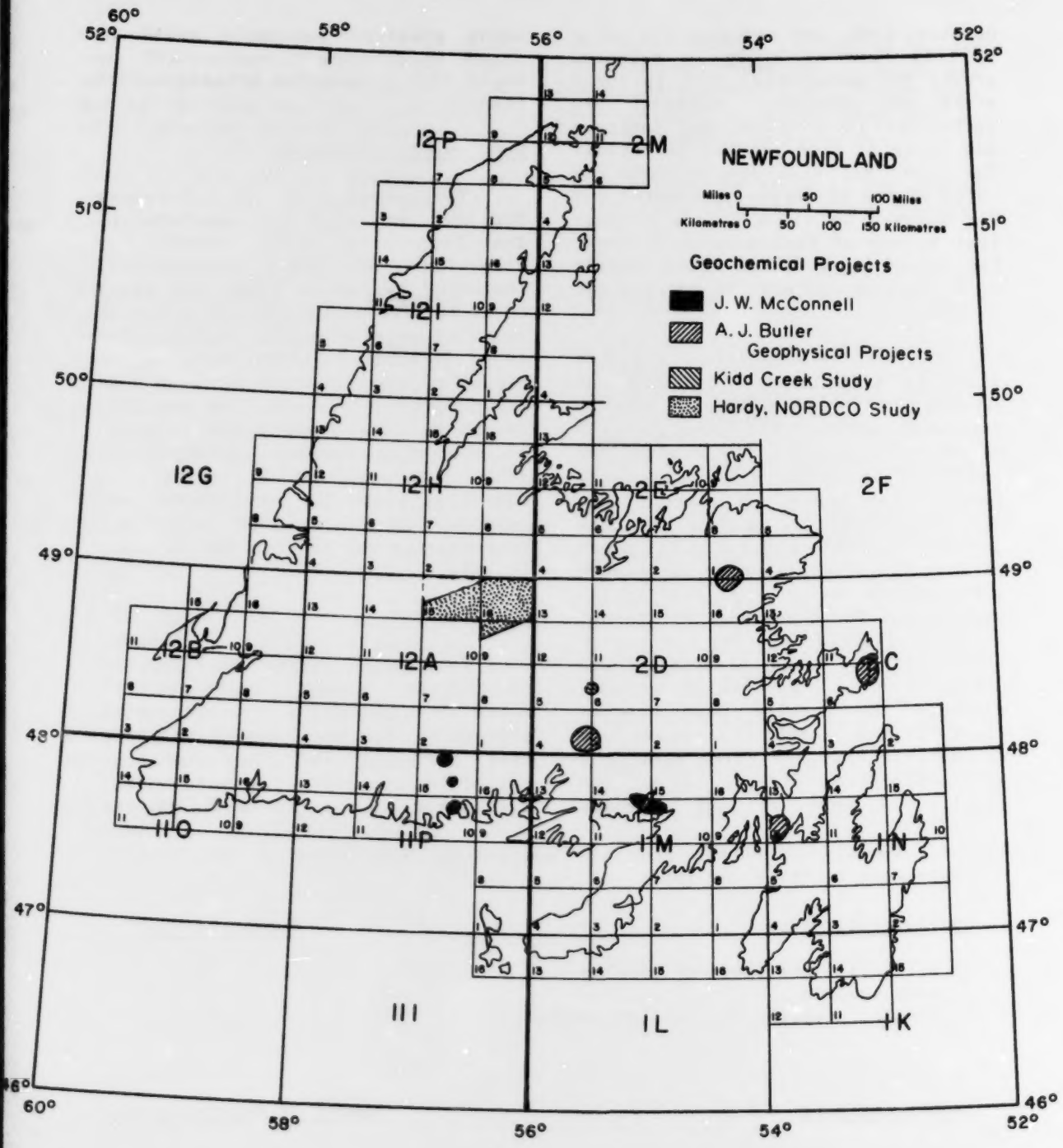


Figure 2: Location of field project areas in 1984, Geochemistry and Geophysics Section.

October, 1984, and revealed the value of this type of study in selected areas. The geophysical data in these areas are providing important new geological information, and indicate new areas of high mineral potential. The study has also demonstrated the value of the airborne gradiometer and VLF surveys as flown by the Geological Survey of Canada in this area. The second phase of the study leading to a final report will be carried out in 1985.

The section supported a research study by Kidd Creek Mines Ltd. on property near Conne River Big Pond to determine whether the piezoelectric effect of quartz in the mineralized quartz veins could be used to trace these veins beneath glacial draft. The seismo-electric method has been applied in the U.S.S.R. in prospecting for mineralization associated with quartz veins and quartz-rich pegmatites. The study was carried out by Hardy Associates under the supervision of Dr. John Slankis, Chief Geophysicist of Kidd Creek Mines Ltd. Although the results were not as clear as was hoped, the study did demonstrate that the veins exhibit a seismo-electric effect. From the results, a more refined approach using modified equipment could be tried in subsequent studies. It is hoped that a workable technique will result.

Geochemical Laboratory

The output from the laboratory for 1984 is summarized in Table 1. The laboratory staff, under the direction of Hank Wagenbauer, increased by two in 1984, and Ewart Burke retired on December 31 after 18 years of service. Staff organization as of December 31, 1984, is shown in Figure 1. The increased staff ensured the completion of work from the 1983 season by late summer, and progress on analyzing samples collected in 1984 is on schedule. In addition, a choice of a new ICP spectrometer was made and an A.R.L. 3520 sequential spectrometer was ordered for delivery in 1985.

Computer Unit

This unit, under the direction of Harjit Missan, continued to coordinate computer services for data processing for the Mineral Development Division, including the provision of terminals to Newfoundland and Labrador Computer Services, and

Table 1: Summary of output from the geochemical laboratory of the Mineral Development Division for 1984.

Sample preparation	Number of Samples
1) Soil, till and sediment samples	1949
2) Rock samples	5027
3) Samples prepared for outside analysis	8877
	13,853

Sample analysis	Number of determinations
1) Major and trace elements in silicate rocks	46,867
2) Assays and miscellaneous analyses	10,578
3) Geochemical analyses of sediment, soil and till	44,867
	102,312

the operation of the Tektronix 4054 and its plotter and hard copy machine. The main development work during the year was the acquisition of a number of computer programs from the United States Geological Survey and their modification to run on the Texas Instruments Professional Computer. A list of these programs now running is given in Table 2.

Table 2: Programs for geological applications written by staff of the United States Geological Survey and modified to run on a Texas Instrument Professional Computer.

Name	Language	Description
CIPC77.EXE	Fortran	CIPW norm program, columnar output.
CIPR77.EXE	Fortran	CIPW norm program, normal output.
CONT77.EXE	Fortran	Produces contour map on line printer.
GRID77.EXE	Fortran	Produces gridded data for contour and other programs.
MNRL77.EXE	Fortran	Mineral Normative program.
PLUMBTEC.BAS	Basic	Uranium-lead concordia model program (version I).
PBTEC2.BAS	Basic	Uranium-lead concordia model program (version II).
FILT2D.EXE	Fortran	Filter weighting program.
GEOLNR.EXE	Fortran	Linear regression program.
DERIV2.EXE	Fortran	Calculates second derivatives.
JUSTIFY.BAS		
FILESORT.BAS	Basic	GRASP database utility programs.
GSPSORT.BAS		
NUGRP.BAS	Basic	GRASP database program, without plotting options.
CMPGRP.EXE	Compiled Basic	Compiled Basic version of above.
EQMODE.EXE	Fortran	Q-mode factor analysis program.

MINES BRANCH
MINERAL DEVELOPMENT DIVISION
REGIONAL MAPPING - NEWFOUNDLAND

INTRODUCTION

In 1984, the Newfoundland Mapping Section consisted of six full-time project geologists. During the summer months of 1984, it also included twelve temporary personnel.

The primary responsibility of the section is to make geological maps of selected parts of insular Newfoundland, with an ultimate objective of providing full coverage for the whole island. Most of the maps are prepared at a scale of 1:50,000, although in some areas where there are relatively few different types of rocks, a scale of 1:100,000 is sufficient.

Mapping was carried out between late May and mid-September, 1984. The rest of the year was used to do laboratory and microscope work on rock samples, to prepare maps and accompanying reports, and to communicate the results to interested parties, particularly companies interested in mineral exploration.

Project Geologist	Location	Temporary Personnel	Budget	Source of Funds
Stephen Colman-Sadd (Senior Geologist)	South-Central Newfoundland	1	$103,281	Provincial
Frank Blackwood	Southern Newfoundland	1	$ 84,449	CNMDA Joint*
Lawson Dickson	Southern Newfoundland	3	$160,033	CNMDA Joint
Sean O'Brien	South-Central Newfoundland	4	$152,708	CNMDA Joint
Ian Knight	Great Northern Peninsula	5	$118,092	CNMDA Joint
Doug Boyce	Western Newfoundland	1	$ 79,443	CNMDA Nfld.*
		Total Budget	$698,006	

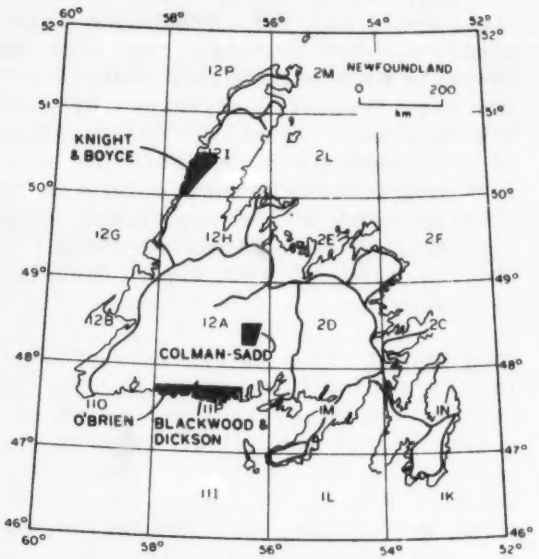
* Canada-Newfoundland Mineral Development Agreement. 'Joint' projects were jointly funded by Canada and Newfoundland; 'Nfld.' project was separately funded by Newfoundland.

PERSONNEL AND BUDGETS

The preceding table lists the full-time project geologists, and shows the locations of their projects, the numbers of temporary personnel hired, the sizes of the budgets, and the sources of funds. All budgets were for the fiscal year 1984-85.

INDIVIDUAL PROJECTS (see map)

Stephen Colman-Sadd: Mapping was done in the western part of the Great Burnt Lake (N.T.S. 12A/8) area, around the reservoirs of the Upper Salmon hydroelectric project. The rocks have potential for tin and tungsten mineralization. Anthony Benoit provided field assistance. In the office, work was continued on a map and a report of the Burnt Hill (N.T.S. 2D/5) area, south of Grand Falls.



NEWFOUNDLAND MAPPING PROJECTS
INDEX MAP 1984

Frank Blackwood: Mapping was done in the Ramea and La Hune (N.T.S. 11P/10 and 11) areas, in the immediate vicinity of Grey River. Morris West was field assistant for the duration of the field season. The main mineral potential in the area is for tungsten, uranium, and precious and base metals. Office work consisted of preparing a report and map of the Facheux Bay (N.T.S. 11P/9) area, near Bay d'Espoir, where field work was done in 1982.

Lawson Dickson: Dickson mapped those parts of the Ramea and La Hune map areas (N.T.S. 11P/10, 11) that are not in the immediate vicinity of Grey River. The main mineral potential is for tin, tungsten and uranium. Assistance in the field was provided by Paul Delaney, Gilbert Wong and Barry Wheaton. Laboratory, microscope and computer work was continued on granitic rocks (North Bay Granite) from northwest of Bay d'Espoir.

Sean O'Brien: Mapping was completed in the Burgeo (N.T.S. 11P/12) and Burnt Pond (N.T.S. 12A/3) areas. Field assistants were Steve Tomlin, Brian Wheaton, Richard Lushman and Jacob Lushman. There is potential in these areas for uranium, tungsten, and precious and base metal mineralization, and occurrences of copper and molybdenum were discovered. Office and laboratory work was mainly concerned with samples from the White Bear River area (N.T.S. 11P/14), particularly from locations that were discovered in 1983 to have high uranium contents.

Ian Knight: The project is designed to provide geological map coverage of the area underlain by carbonate rocks along the west coast of Newfoundland. During 1984, mapping was done in the Bellburns (N.T.S. 12I/5,6), Portland Creek (N.T.S. 12I/4) and Indian Lookout (N.T.S. 12I/3) areas. Field assistants were Kevin Austin, Keri

Sparkes, Chris Pinsent, Graham Smith and Lawrence Patey. The potential in the area is for lead and zinc deposits, for example, the zinc at Daniel's Harbour, and for onshore oil and gas. Several occurrences of zinc minerals were found and indications of hydrocarbons were noted in some rock units. Office work consisted of writing reports on map areas that have already been completed along the western side of the Great Northern Peninsula.

Doug Boyce: This is the only project in the Newfoundland Mapping Section that is not directly involved in the production of geological maps. Boyce is responsible for identifying fossils discovered by himself and other geologists, and thereby dating the rocks which contain them. This is particularly important in the case of Knight's project, where the age of the rocks is an important control on mineralization. Most of the field work that Boyce did in 1984 was concentrated on the carbonate terrane. Office work consisted of the compilation of paleontological information from western Newfoundland for publication as a report.

STATISTICS

In 1984, geological mapping was completed on the equivalent of five 1:50,000 N.T.S. map areas, with a total area of about 6000 km^2.

The total budget was $698,006, giving a cost of $116 per km^2.

PUBLICATIONS

Blackwood, R.F.
Current Research, Report 84-1.

Blackwood, R.F. and Dickson, W.L.
Map (Open File): Ramea.
Map (Open File): La Hune.

Boyce, W.D.
Current Research, Report 84-1.

Colman-Sadd, S.P.
Current Research, Report 84-1.

Colman-Sadd, S.P. and Swinden, H.S.
A tectonic window in central Newfoundland? Geological evidence that the Appalachian Dunnage Zone may be allochthonous. Canadian Journal of Earth Sciences, volume 21, pages 1349-1367.
Map (Open File): Great Burnt Lake. Open File Map 84-66.

Dickson, W.L.
Mineralized Granites in Southern Newfoundland. In Mineral Deposits of Newfoundland - A 1984 Persective. Compiled by H.S. Swinden, Report 84-3.

Dickson, W.L. and Delaney, P.
Current Research, Report 84-1.

Knight, I.
Current Research, Report 84-1.
Mineral deposits of the Carboniferous Bay St. George Subbasin. In Mineral Deposits of Newfoundland - A 1984 Perspective. Compiled by H.S. Swinden, Report 84-3.
Mineralization in Cambro-Ordovician rocks, western Newfoundland. In Mineral Deposits of Newfoundland - A 1984 Perspective. Compiled by H.S. Swinden, Report 84-3.

O'Brien, S.J.
Current Research, Report 84-1.

O'Brien, S.J., Nunn, G.A.G., Dickson, W.L. and Tuach, J.
Geology of the Terrenceville (1M/10) and Gisborne Lake (1M/15) map areas, southeast Newfoundland, Report 84-4.

O'Brien, S.J. and Tomlin, S.L.
Burgeo, Open File Map.
Burnt Pond, Open File Map.

Rankin, D.W., Autran, A., Bishop, A.C., Furness, H.C., Hurst, J.M., LePage, A., Milton, D.J. and O'Brien, S.J.

Plutonism and volcanism related to the Pre-Arenig evolution of the Caledonide-Appalachian orogen. International Geological Correlation Programme; The Evolution of the Caledonide-Appalachian orogen. Project 27 Meeting, Glasgow, Scotland (September, 1984).

Strong, D.F., O'Brien, S.J. and Dostal, J.

Petrochemical evolution of Late Proterozoic rocks of the Avalon Zone type area in Newfoundland. G.S.A. northeast section. Abstracts, volume 16.

MINES BRANCH
MINERAL DEVELOPMENT DIVISION
REGIONAL MAPPING - LABRADOR

INTRODUCTION

The Labrador Mapping Section is responsible for increasing geological map coverage of Labrador at the 1:100,000 scale. In 1984, most of this work was funded under the Canada-Newfoundland Mineral Development Agreement.

Most of the office work done by the section in 1984 involved report and map preparation for field work carried out during the 1984 and previous field seasons. The results of this work are published in Current Research, Report 85-1.

STAFF

Senior Geologist: Richard Wardle

Project Geologists: Ges Nunn (Western Grenville project); Andre Thomas (Central Grenville project); Bruce Ryan (Nain-Churchill project); and Charles Gower (Eastern Grenville project).

Project geologist Philippe Erdmer, a federal contractual employee resident at the section, and working on the Long Range Mountains project, resigned in May, 1984, to take up a position at the University of Alberta. Gregory Stapleton was hired as geological technician to assist project geologists in office and laboratory work.

BUDGET

PROJECT SUMMARIES

Senior Geologist Project (R. Wardle)

R. Wardle spent most of the 1984 field season doing geological reconnaissance of the Postville-Makkovik area. This work included collecting samples for age dating analyses as well as sampling for gold and silver mineralization. The latter work was carried out by a two-man party (Wardle and L. Green) in association with D. Wilton of Memorial University, Department of Earth Sciences. This work resulted in the discovery of gold mineralization in the Pomiadluk Point-Big Bight area. In addition, Wardle and Ryan visited Quebec Department of Natural Resources field parties in the George River area. This work was provincially funded.

Western Grenville Project (Ges Nunn)

No field work was undertaken in 1984; instead, work concentrated on map and report preparation for areas mapped during the 1982-83 Cooperative Minerals Program.

Central Grenville Project (A. Thomas)

Field work for this project was completed in 1983. Subsequent work was concentrated on map and report preparation for the 1982-83 Cooperative Minerals Program.

Nain-Churchill Project (B. Ryan)

Field work for this project was completed in 1983. Subsequent work was concentrated on map and report preparation for the 1982-83 Cooperative Minerals Program.

Eastern Grenville Project (C. Gower)

Field work in 1984 covered the four N.T.S. map sheets 13H/3,4,5 and 6 in the area around the settlement

of Paradise River. Work involved a seven-man party with about 1.5 months helicopter support. Work resulted in delineation of paragneiss belts containing sulfide gossans and anomalously radioactive granite. Both represent potential exploration targets. This work was funded under the Canada-Newfoundland Mineral Development Agreement.

SUMMARY

Field work started in June and ended in late August-early September. This work resulted in coverage of an additional 2.5 percent of Labrador at the 1:100,000 scale. Map coverage of Labrador now stands at 41.5 percent.

The Labrador section was also involved in preparation of talks and written papers for the Geological Association of Canada symposium "New perspectives on the Grenville problem", held in London, Ontario, May 14-16, 1984.

Three members of the section, Ges Nunn, Charles Gower and Andre Thomas, also participated in the NATO Advanced Studies Institute "The Deep Proterozoic Crust in the North Atlantic Provinces" held during July, 1984, in southern Norway. Papers presented at this meeting are presently in press.

Government Publications

Erdmer, P.
1984: Summary of field work in the northern Long Range Mountains, western Newfoundland. Current Research, Report 84-1, pages 103-113.

Gower, C.F.
1984: Geology of the Double Mer White Hills and surrounding region, Grenville Province, eastern Labrador. Current Research, Report 84-1, pages 68-79.

Gower, C.F. and Erdmer, P.
1984: The mineral potential of paragneiss in the Grenville Province in eastern Labrador. Current Research, Report 84-1, pages 80-87.

Nunn, G.A.G., Noel, N. and Culshaw, N.G.
1984: Geology of the Attikonak Lake area, Grenville Province, western Labrador. Current Research, Report 84-1, pages 30-41.

Ryan, B., Martineau, Y., Korstgaard, J. and Lee, D.
1984: The Archean-Proterozoic boundary in northern Labrador, Report 2. Current Research, Report 84-1, pages 12-20.

Thomas, A., Culshaw, N., Mannard, G. and Whelan, J.G.
1984: Geology of the Lac Ghyvelde-Lac Long area, Labrador and Quebec. Current Research, Report 84-1, pages 42-52.

Wardle, R.
1984: Nain-Churchill Province cross-section; Riviére Baudancout - Nachvak Lake. Current Research, Report 84-1, pages 1-11.

Wardle, R. and Ash, C.
1984: Geology of the North West River area. Current Research, Report 84-1, pages 53-67.

1984: Notes on the geology of the North West River area (13F/9), Labrador (to accompany Map 84-20).

External Publications

Gower, C.F. and Owen, V.
1984: Pre-Grenvillian and Grenvillian lithotectonic regions in eastern Labrador - correlations with the Sveconorwegian Orogenic Belt in Sweden. Canadian Journal

of Earth Sciences, volume 27, pages 678-693.

Conference Presentations

Gower, C.F.
Geological Association of Canada, London, Ontario, May, 1984. The Grenville Province in eastern Labrador - correlation with the Svecouorwegian Orogenic Belt in Sweden. Geological Association of Canada, Program with abstracts, volume 9, page 68.

Gower, C.F. and Owen, V.
NATO Advanced Study Institute, Norway, July, 1984. Correlation between the Grenville Province, Labrador, Canada and the Sveconorwegian Orogenic Belt, Sweden. Abstract in The Deep Proterozoic Crust in the North Atlantic Provinces, page 15.

Nunn, G.A.G. and Thomas, A.
The Labradorian Orogeny. Canadian Tectonic Studies Group AGM, Manivaki, Quebec, October 27, 1984. Abstract and poster session.

Rivers, T. and Nunn, G.A.G.
A reassessment of the Grenvillian Orogeny in western Labrador. NATO ASI, Norway, July, 1984. The deep Proterozoic crust in the North Atlantic Provinces, Volume of abstracts, page 25.

Thomas, A. with Nunn, G.A.G.
London, Ontario, May, 1984. Recent Geological and Geochronological data, north-central margin of the Grenville Province in Labrador. Geological Association of Canada, Program with Abstracts, volume 9, page 111.

Wardle, R.J.
London, Ontario, May, 1984. A new look at the eastern Grenville Province of Labrador-Eastern Quebec. Geological Association of Canada, Program with Abstracts, volume 9, page 115.

Wardle, R.J., Thomas, A. with Nunn, G.A.G.
NATO ASI, Norway, July, 1984. A 1650 Ma orogenic belt within the Grenville Province of Northeastern Canada. Abstract in volume of abstracts. Deep Proterozoic Crust in the North Atlantic Provinces, page 27.

DRAUGHTING SECTION

Maps are a primary means of communicating geological information. The section takes the manuscript maps produced by the department's geologists through the various stages of production to the final components required for printing. This capability applies to both black and white and multicolor maps. The section also produces a wide variety of other illustrative material for the department staff, including slides for oral presentations and graphic displays for workshops and meetings.

BUDGET

Salaries, equipment and supplies, base maps, photographic costs, and travel for the 1984-85 fiscal year totaled $230,311

PERSONNEL

The section currently consists of one supervisor and two cartographic technicians. Because of the heavy workload, the section will be increasing its staff by one cartographic technician and also one photomechanical technician to work in our new photomechanical laboratory.

SCRIBING AND MAP PRODUCTION

The section is responsible for the scribing of geological maps, the preparation of type overlays and color separation negatives for color proofing maps, and the preparation of composite and printing negatives. It is also responsible for checking register and color during map printing both in and out of the province.

PHOTOMECHANICAL LABORATORY

In 1984, a fully equipped photomechanical laboratory was installed. The laboratory will be responsible for a wide variety of services such as negatives and positives (paper and film), composite negatives and positives, color proofs, peel coats, halftone prints, continuous tone prints, screened printing negatives and various photographic effects.

In 1985, a color processing unit will be added to produce color prints from slides or negatives, color photography of various maps, charts, etc., and photographic color separation negatives for printing.

PUBLISHED MAPS (99)

Scale	Three Color	Black & White	Open File
1:250,000	9	-	52
1:100,000	-	3	1
1:50,000	-	4	30
Total	9	7	83

PRESENTLY BEING DRAFTED (310)

Scale	Multicolor	Black & White
1:250,000	-	275
1:100,000	5	-
1:50,000	-	20
Other	-	10
Total	5	305

PHOTOMECHANICAL LABORATORY

Color Proof	6
Comp. Neg.	31
Comp. Paper Pos.	8
Comp. Pos.	80
Direct Pos.	25
Dup Neg.	35
Film Pos.	55
Halftone Neg.	1
Halftone Pos.	63
Neg.	140
Paper Pos.	91
Peel	6
PMT	377

ILLUSTRATIVE MATERIAL

Approximately 1,000 figures, illustrations and perspective drawings for various reports such as:

- Memoirs
- Current Research
- Review of Activities
- External Publications, e.g. Canadian Journal of Earth Sciences
- Summaries, etc.

Graphic Art and Display Material

Approximately 80 various graphs, charts, slides, etc. were produced for displays and talks such as:

- Show and Tell
- Prospectors meetings
- Talks and workshops, etc.

Student Tours

During the year, the section was called upon from time to time to provide demonstrations and brief outlines of the operations to students of the university, technical colleges and various high schools in the area.

MINES BRANCH
MINERAL DEVELOPMENT DIVISION
PUBLICATIONS AND INFORMATION SECTION

BUDGET

The budget for the 1984-85 fiscal year was approximately $600,000.

PERSONNEL

During 1984, the Head of the Section was Rex Gibbons, Senior Geologist/Editor. In Report Production, there were one Review Geologist/Technical Editor, Jane Murray, three word processor (WP) operator positions, and one clerk-typist, Judy Morgan. The lead operator was Debbie Downey. The other operators were Bev Strickland (Cluster Administrator) and Denise Gamberg. For the winter of 1984, Gerald Whelan assisted Murray as copy editor. Murray resigned in September, 1984, to take a new position in Toronto; a search for a replacement was continuing at the end of the fiscal year. During this period, for the winter and spring of 1985, Des Walsh and Kevin Brewer assisted as copy editors.

In Technical Information, there were a mineral exploration consultant as supervisor, Norman Mercer; a librarian, Genie Power; an information officer, Randy Meehan; and a microfiche clerk, Doreen Mahon. Positions of sales clerk and library assistant remained vacant all year due to inadequate funds. Catherine Patey continued as geologist in charge of GEOSCAN, the computerized bibliography to all available reports on the province's mineral resources. However, there were no funds available to hire a seasonal assistant to help with GEOSCAN coding.

In Drill Core Storage, Alvin Harris continued as project geologist operating out of St. John's and Stewart Cochrane continued to work at the Pasadena core library. During the 1984 field season, Gerard Humber and Darren Kauli, both students of Mineral Technology at Bay St. George Community College, Stephenville, were hired to help with core collection and indexing. During the winter of 1985, David Pollard was hired to assist Cochrane in Pasadena.

The Section had no personnel specifically assigned to Educational Services, Public Relations and Advertising.

ACTIVITIES

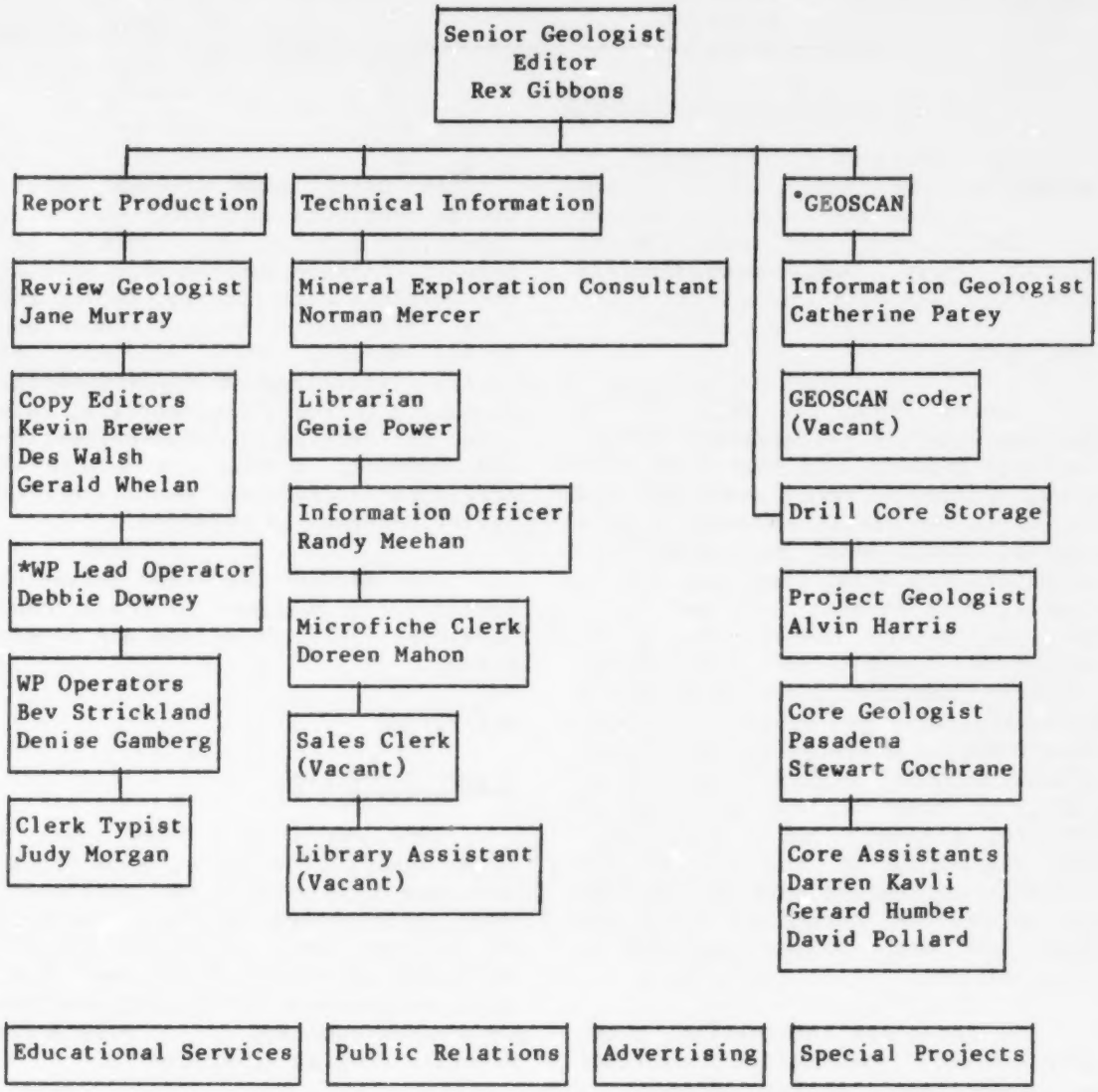
Report Production

1984 was a very busy year. A large number of reports, open files, and maps were edited and published. Work concentrated on the completion of projects done under the Canada/Newfoundland Mineral Development Subsidiary Agreement (1976-1982) and the Canada/Newfoundland Cooperative Minerals Program (1982-1984).

The most significant single accomplishments of the year were the completion and publication of two memoirs. These were Memoir #2 by J.P. Hibbard on the Geology of the Baie Verte Peninsula, Newfoundland, and Memoir #3 by A.B. Ryan on the geology of the Central Mineral Belt, Labrador.

An appendix to this annual report lists all the reports, maps, and files released in 1984.

PERSONNEL CHART, 1984/85



* WP - Word Processor.

*GEOSCAN - Computerized bibliographic index to mineral occurrence and related data.

Progress also continued on several other major reports which are scheduled to be completed in 1985-86.

Core Storage Project

During the 1984 field season, drill core collection continued in insular Newfoundland, and abandoned drill sites in western Labrador were inspected and core identified for collection in 1985. In insular Newfoundland, 7,566 m of core was collected from thirteen sites and in western Labrador 1,920 m of core from four projects was identified for collection in 1985. To date, the core storage program has collected 149,012 m of drill core, of which 121,099 m is classified as "open" and is available for inspection by interested persons.

The core storage program is presently storing 27,913 m of core from ten drilling projects on a confidential basis.

The Department of Mines and Energy operates three drill core libraries, located in St. John's, Pasadena and Goose Bay.

The St. John's library is staffed on a full-time basis, except during the field season. It has a capacity of 60,000 m of drill core. Approximately 12,000 m of drill core has been catalogued and placed on the rack system to date. Most of this core is from eastern Newfoundland, from the St. Lawrence area and the "silica survey" drilling conducted by the provincial government during the 1960's. Drill core logs and location maps have been prepared for catalogued core. The St. John's library also contains rock cutting equipment, core splitters, a stereomicroscope, a magnetic susceptibility meter, a resistivity meter, an ultraviolet light and a McPhar TV-1 scintillometer. This facility and equipment is available for use on approved projects by exploration geologists, university researchers, the staff of the Department of Mines and Energy and other interested persons.

The Pasadena core library is also staffed on a full-time basis. This library has equipment and facilities similar to the St. John's library and has a capacity of 200,000 m of core. It has a ventilated room for storing radioactive core and a humidity-controlled room for storing salt core. There are approximately 121,000 m of core presently stored in the Pasadena library, collected from drilling sites west of Gander.

The Goose Bay core library, which contains core from Labrador, though not staffed full-time, has a capacity of 60,000 m of core, with room for expansion. Approxiamtely 8,600 m of core have been catalogued and placed on the rack system to date.

Technical Information

The Mineral Development Division maintains a geological and mineral resource assessment file system which is referred to as the "Mineral Assessment Report Library". This library presently consists of approximately 9,000 geological and geochemical reports, maps, journal articles and mineral assessment files, making them the largest and most comprehensive single collection of geoscience documents about Newfoundland and Labrador.

As a result of the high level of mineral exploration activity experienced during the late 1970's and early 1980's throughout the province, the amount of new data submitted increased substantially. New information is now available on many of the old and also numerous new mineral occurrences in the province. Much more is now known about the geology and mineral potential of various regions both on the island and in Labrador.

The Mineral Development Division has also conducted a large number of field projects over the past few years. This has resulted in the publication of many new geological reports, maps and open files as well as the results of numerous geochemical surveys and surficial and aggregate resource studies.

Mining and exploration companies, prospectors, geotechnical and consultant firms, government agencies, universities, libraries and the general public are continually making use of the geofiles and requesting information from them. Requests have increased substantially in the past few years.

During the past five years the Publications and Information Section has been putting all of the good quality mineral assessment reports on microfiche. This provides a much more efficient system of maintaining the geofiles. Requests for information are processed more rapidly and easily, with relatively inexpensive charges for microfiche.

The microfiche project involves daily filming of batches of reports. The reports are cross-checked before filming for quality, content and reproducibility. Two microfiche originals are made and cataloged for each file. Filing follows the standards of the National Topographic System. Duplicates can be copied from the original fiche upon demand. One set of fiche originals is stored offsite at the Torbay Core Library for security and protection from fire.

Microfiche sets of mineral assessment reports covering all 1:250,000 N.T.S. blocks in insular Newfoundland are available along with microfiche sets for many of the Newfoundland General Series reports. Several releases have also been made for microfiche sets of mineral assessment reports from a number of the 1:250,000 N.T.S. blocks in Labrador.

Work on the Labrador mineral assessment reports is continuing and we are expecting to make several more releases of duplicate sets of microfiche by Christmas. Labrador has been the focus of our attention this year and we are expecting to complete this phase of the project in 1985.

During 1984, we also continued placing the mineral occurrence reports on microfiche and making them available. Presently, mineral occurrence reports for N.T.S. 1N, 2C, 2D, 2E, 2F, 2L, 2M, 11O, 11P, 12B, 12G, 12H, 12I, 12P, 13K, 13N, 14C are available. Further releases will be made as staff in the Mineral Deposits Section complete new N.T.S. areas.

The publications distribution center continued to grow in 1984 as more new reports were published. A growing problem is storage space, because publishing is proceeding much faster than sale and distribution.

GEOSCAN

GEOSCAN is a computerized bibliographic database of Canadian-produced and/or Canada-related geoscience documents.

The Newfoundland Department of Mines and Energy is one of the ten agencies which index documents for input into this database. Our Mineral Assessment Report Library files and mineral inventory cards are the sources of our indexed documents. Other agencies, e.g. the Geological Survey of Canada and the Earth Physics Branch of the Canada Department of Energy, Mines and Resources, also produce and index documents that concern this province.

In 1982, the National GEOSCAN Center, which manages GEOSCAN, implemented a new software system, called MINISIS, to input and retrieve the bibliographic data more effectively. In the implementation of the new system, all the old documents were converted to a new format. For example, different types of keywords were moved into different fields: map types, illustrations, geological terms. Although most of the records did convert, they did not convert cleanly and completely. For example, reports may be missing a title or authors and terms may have been assigned to the wrong fields. In cooperation with the National GEOSCAN Center, these old documents are being corrected.

All new documents are input directly onto the new system and are immediately retrievable online. To date, only indexed documents from assessment files have been keyed into the system, although other types of documents, in particular government publications, have been coded.

Besides indexing and keying new documents, new coding sheets are being produced, the authority files or thesauri used in coding are being enlarged, and the terms used are being more clearly defined.

All of the 87,000 GEOSCAN records from across Canada, including those concerning this province, are available through online computer searches at the Geological Survey of Canada Library in Ottawa and, in St. John's, at our Publications and Information Section. Searches are performed on a cost-recovery basis with a minimal charge of $10.00 per search topic. A moderate size search (100-200 titles) costs between $15 and $45.

As well, GEOSCAN Newfoundland and Labrador indexes current to February 1982, the date of the last update on the old system, are available from the Publications and Information Section. A computer printout sorted by National Topographic System area is also available for the newer documents.

Educational Services

In 1984, the Section continued to provide a variety of educational services to the province's schools. About 100 rock and mineral sets were distributed free to teachers involved in teaching earth science in high school or about mineral resources in elementary school. Brochures and maps on mining and geology were distributed free to schools that requested them.

The Section participated in several school Careers Days, where talks were given on mining in Newfoundland and Labrador. Assistance was also provided in judging several science fairs.

In cooperation with the Department of Education, the Section helped to finalize a slide set on the Buchans mine. In cooperation with the Newfoundland Section of the Geological Association of Canada, the Section helped to distribute the Newfoundland Journal of Geological Education to schools throughout the province.

The Section would like to do more on slide sets, field trip guides and related needs of the province's schools but cannot do so without additional staff to assign to these tasks.

Public Relations and Advertising

The Section coordinates the preparation of news releases for the Mines Branch, for example, end-of-year review of mining for the past year plus occasional updates or special events. In 1984, major releases were prepared to coincide with the Prospectors Convention in Toronto in March and the Canadian Institute of Mining (Newfoundland

Branch) meeting and the Department's open house in November in St. John's. Displays were presented promoting mining opportunities in the province in both these cases as well. The Section also had a display at the Newfoundland Section (G.A.C.) meeting in 1984.

The Section represented the Department at several public meetings, for example, St. John's Board of Trade Business Outlook in January. If travel can be arranged, Section officers are pleased to talk to any public group about the province's mineral resources.

PUBLICATIONS & INFORMATION SECTION
NEWFOUNDLAND DEPARTMENT OF MINES AND ENERGY
P.O. Box 4750, 95 BONAVENTURE AVENUE
ST. JOHN'S, NEWFOUNDLAND A1C 5T7
Phone (709) 576-3159
Telex 016-4724

LIST OF PUBLICATIONS FOR 1984-85

REPORTS

Batterson, M.J. 1984: *Surficial geology of the Waterford River Basin, St. John's, Newfoundland;* Newfoundland Department of Mines and Energy, Urban Hydrology Technical Report T-1. **PRICE: $3.00 (paper), $1.00 (microfiche)**

Brewer, K., Walsh, D. and Gibbons, R.V. (compilers) 1985: *Current Research;* Newfoundland Department of Mines and Energy, Report 85-1. Contains technical reports on 1984 field and office projects of the Mineral Development Division. **PRICE: $10.00**

Gibbons, R.V. (compiler) 1984: *Preliminary Current Research for 1984;* Newfoundland Department of Mines and Energy. Contains preliminary technical reports on 1984 field and office projects of the Mineral Development Division. **PRICE: $3.00**

Hibbard, J. 1984: *Geology of the Baie Verte Peninsula, Newfoundland;* Newfoundland Department of Mines and Energy, Memoir 2, 279 p. plus a full-color geology map. **PRICE: $30.00 (soft cover) - $50.00 (hard cover)**

King, A.F. 1984: *Geology of the Waterford River Basin, St. John's, Newfoundland;* Newfoundland Department of Mines and Energy, Urban Hydrology Technical Report T-2. **PRICE: $3.00 (paper), $1.00 (microfiche)**

McConnell, J. 1984: *Reconnaissance and detailed geochemical surveys for base metals in Labrador;* Newfoundland Department of Mines and Energy, Report 84-2, 113 p. plus fully illustrated, colored maps). **PRICE: $20.00**

Murray, M.J., Whalen, J.G. and Gibbons, R.V. (compilers) 1984: *Current Research;* Newfoundland Department of Mines and Energy, Report 84-1. Contains technical reports on 1983 field and office projects of the Mineral Development Division. **PRICE $10.00.**

O'Brien, S.J., Nunn, G.A.G., Dickson, W.L. and Tuach, J. 1984: *Geology of the Terrenceville (1M/10) and Gisborne Lake (1M/15) map areas, southeast Newfoundland;* Newfoundland Department of Mines and Energy, Report 84-4, plus 2 printed maps and cross-section. **PRICE: $10.00**

Ryan, B. 1984: *Regional geology of the central part of the Central Mineral Belt, Labrador;* Newfoundland Department of Mines and Energy, Memoir 3, 185 p. plus 2 full-color geology maps. **PRICE: $30.00 (soft cover) $50.00 (hard cover).**

Swinden, H.S. (compiler) 1984: *Mineral deposits of Newfoundland - A 1984 perspective;* Newfoundland Department of Mines and Energy, Report 84-3, 203 p. (Report is spiral bound with a laminated cover). **PRICE: $10.00**

NEWFOUNDLAND MINERAL OCCURRENCE MAPS

Map 8421 2C, Bonavista
Map 8423 2F, Wesleyville
Map 8424 2M, St. Anthony
Map 8425 12P, Blanc-Sablon
Map 8444 12G, Bay of Islands
Map 8445 2D, Gander Lake
Map 8461 11O, Port aux Basques
Map 8530 2L & 12I, Port Saunders

(Scale 1:250,000)

LABRADOR MINERAL OCCURRENCE MAPS

Map 8422 13N, Hopedale
Map 8425 12P, Blanc-Sablon

(Scale 1:250,000)

NEWFOUNDLAND GEOLOGY MAPS

Colman-Sadd, S.P. and Swinden, H.S. 1984: *Geology of the Great Burnt Lake map area (N.T.S. 12A/8), Newfoundland;* Newfoundland Department of Mines and Energy, Map 8466. Scale: 1:50,000. **PRICE: $3.00**

Dickson, W.L. 1984: *Geology of the Dolland Brook map area (N.T.S. 11P/15E), Newfoundland;* Newfoundland Department of Mines and Energy, Map 8426. Scale 1:50,000. **PRICE: $3.00**

1984: *Geology of the Wolf Mountain map area (N.T.S. 12A/2E), Newfoundland;* Newfoundland Department of Mines and Energy, Map 8427. Scale 1:50,000. **PRICE: $3.00**

1984: *Geology of the D'Espoir Brook map area (N.T.S. 11P/16), Newfoundland;* Newfoundland Department of Mines and Energy, Map 8428. Scale 1:50,000. **PRICE: $3.00**

Dickson, W.L., Blackwood, R.F., Delaney, P.W. and Poole, J. 1984: *Geology of the Ramea map area (N.T.S. 11P/11), Newfoundland;* Newfoundland Department of Mines and Energy, Map 8462. Scale: 1:50,000. **PRICE: $3.00**

1984: *Geology of the La Hune map area (N.T.S. 11P/10), Newfoundland;* Newfoundland Department of Mines and Energy, Map 8463. Scale: 1:50,000. **PRICE: $3.00**

O'Brien, S.J. and Tomlin, S.L. 1984: *Geology of the Burgeo map area (N.T.S. 11P/12), Newfoundland;* Newfoundland Department of Mines and Energy, Map 8464. Scale: 1:50,000. **PRICE: $3.00**

1984: *Geology of the Burnt Pond map area (N.T.S. 12A/3, West Half), Newfoundland;* Newfoundland Department of Mines and Energy, Map 8465. Scale: 1:50,000. **PRICE: $3.00**

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Wardle, R.J. and Ash, C. 1984: *Geology of the North West River area (N.T.S. 13F/9), Labrador;* Newfoundland Department of Mines and Energy, Map 8420. Scale 1:100,000. **PRICE: $3.00**

Wardle, R.J. and Britton, J.M., 1980, and Wardle, R.J. 1981: *Geology of the Churchill Falls area, Labrador (Map 1, N.T.S. areas 23H/9, 10, 15 and 16);* Newfoundland Department of Mines and Energy, Map 8418. Scale 1:100,000. **PRICE: $3.00**

1980 & 1981: *Geology of the Churchill Falls Area, Labrador (Map 2, N.T.S. area 13E/12 - Sona Lake);* Newfoundland Department of Mines and Energy, Map 8419. **PRICE: $2.00**

OPEN FILES - NEWFOUNDLAND

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Butler, A.J. 1985: *Stream sediment geochemistry of the Kim Lake area (parts of N.T.S. 2D), south-central Newfoundland;* Newfoundland Department of Mines and Energy, Open File NFLD (1482). 11 maps; summary report; data listing. **PRICE: $30.00 (paper) $3.00 (microfiche).**

1985: *Stream and soil geochemistry of the Catalina area, Bonavista Peninsula, Newfoundland;* Newfoundland Department of Mines and Energy, Open File 2C(53). Report; 20 maps; microfiche data listing; (printed copies of data listings & microfiche copies of maps available upon request). **PRICE: $30 (paper) $3.00 (microfiche)**

Butler, A.J., Meyer, J.R., and Davenport, P.H. 1984: *Stream sediment geochemistry of the Harbour Grace area, Avalon Peninsula, Newfoundland;* Newfoundland Department of Mines and Energy, Open File 1N (450). Report; 16 maps; microfiche copy of data listing. **PRICE: $30.00 (paper), $3.00 (microfiche).**

Ellis, R., Dunford, W. and Smyth, W.R. (compilers) 1984: *Compilation of isotopic age data of insular Newfoundland;* Newfoundland Department of Mines and Energy, Open File NFLD (1455), 385 p. **PRICE: $4.00 (microfiche)**

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Howse, A.F., Butler, A.J. and Collins, C.J. 1984: *Stream sediment geochemistry of the St. Bride's area, Avalon Peninsula, Newfoundland;* Newfoundland Department of Mines and Energy, Open File 1L/16(90). Report; 26 maps, microfiche data listing; (printed copies of data listing and microfiche copies of maps available on request). **PRICE: $30.00 (paper copy), $3.00 (microfiche copy)**

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Howse, A.F. and Collins, C.J. 1984: *An assessment of the Diamond Cove quartz vein, Rose Blanche (N.T.S. 110/10), Newfoundland;* Newfoundland Department of Mines and Energy, Open File 110/10(147). Report plus tables, 1 map. **PRICE: $5.00 (paper), $1.00 (microfiche).**

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Meyer, J.R. and Butler, A.J. 1985: *Stream sediment geochemistry of the Fleur de Lys belt on the western side of the Baie Verte Peninsula;* Newfoundland Department of Mines and Energy, Open File 12H(906). Text; 13 maps. **PRICE: $30.00 (paper) $3.00 (microfiche).**

O'Driscoll, C.F. 1984: *The Hickey's Pond belt: Auriferous specularite - alunite - pyrophyllite - sericite mineralization;* Newfoundland Department of Mines and Energy, Open File 1M/16(221), 20 p. **PRICE: $3.00 (paper), $1.00 (microfiche)**

O'Driscoll, C.F. and Huard, A 1984: *Preliminary gold analyses from the Hickey's Pond belt, (N.T.S. 1M/9, 16), Newfoundland;* Newfoundland Department of Mines and Energy, Open File 1M(222). **PRICE: $2.00 (paper) $1.00 (microfiche).**

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OPEN FILES - LABRADOR

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Vanderveer, D.G. 1984: *Quaternary mapping and geochemical data of the Moran Heights area (N.T.S. area 13K/10), Labrador;* Newfoundland Department of Mines and Energy, Open File 13K/10(164). **PRICE: $2.00 (paper), $1.00 (microfiche).**

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Tucker, Bernice	3660	Administration	Eastern Canada	Third
Tuttle, Wayne	896-5162	Goose Bay Office		
Vanderveer, Doug	2750	Quaternary Geology	Eastern Canada	Second
van Nostrand, Cathy	3159	Publications & Information	Eastern Canada	Third
Varghese, Mary	2411	Energy	Medical Arts	Third
Vukomanovic, Ned	2773	Mineral Lands and Mines	Eastern Canada	Second
Wagenbauer, Hank	3312	Laboratory	Howley	
Walsh, Desmond	2769	Publications & Information	Eastern Canada	Fourth
Walsh, Gerard	2773	Mineral Lands & Mines	Eastern Canada	Second
Wardle, Richard	2769	Labrador Mapping	Eastern Canada	Fourth
Whelan, Kevin	3660	Administration	Eastern Canada	Third
Young, Terry	3660	Administration	Eastern Canada	Third